Table of Contents

General Information 1-1
General Information 1-3

Body Systems 2-1
Fixed and Moveable Windows 2-3
Horns and Pedestrian Alerts 2-12
Lighting 2-15
Mirrors 2-45
Trailering Systems 2-53
Vehicle Access 2-67
Wipers and Washers 2-84

Brakes 3-1
Park Brake 3-3

Driver Information and Entertainment 4-1
Image Display Cameras 4-3

Engine/Propulsion 5-1
Starting, Charging, and Low Voltage Energy Storage 5-3

HVAC 6-1
Heating, Ventilation, and Air Conditioning 6-3
HVAC - Automatic 6-4
HVAC - Manual 6-15

Power and Signal Distribution 7-1
Data Communications 7-3
Electrical Component and Inline Harness Connector End Views 7-6
Power Outlets 7-809
Wiring Systems and Power Management 7-824

Safety and Security 8-1
Driver Assistance Systems 8-5
Immobilizer 8-11
Parking Assistance Systems 8-37
Remote Functions 8-218
Seat Belts 8-341
Supplemental Restraints 8-427
Theft Deterrent 8-684

Transmission 9-1
Power Take-Off 9-3
Shift Lock Control 9-7

INDEX INDEX-1

BLANK

Section 1

General Information

General Information 1-3
  Introduction 1-3
    Vehicle, Engine and Transmission ID and VIN Location, Derivative and Usage 1-3
    Vehicle Certification, Tire Placard, and Anti-Theft Label 1-5
    RPO Code List 1-7

BLANK

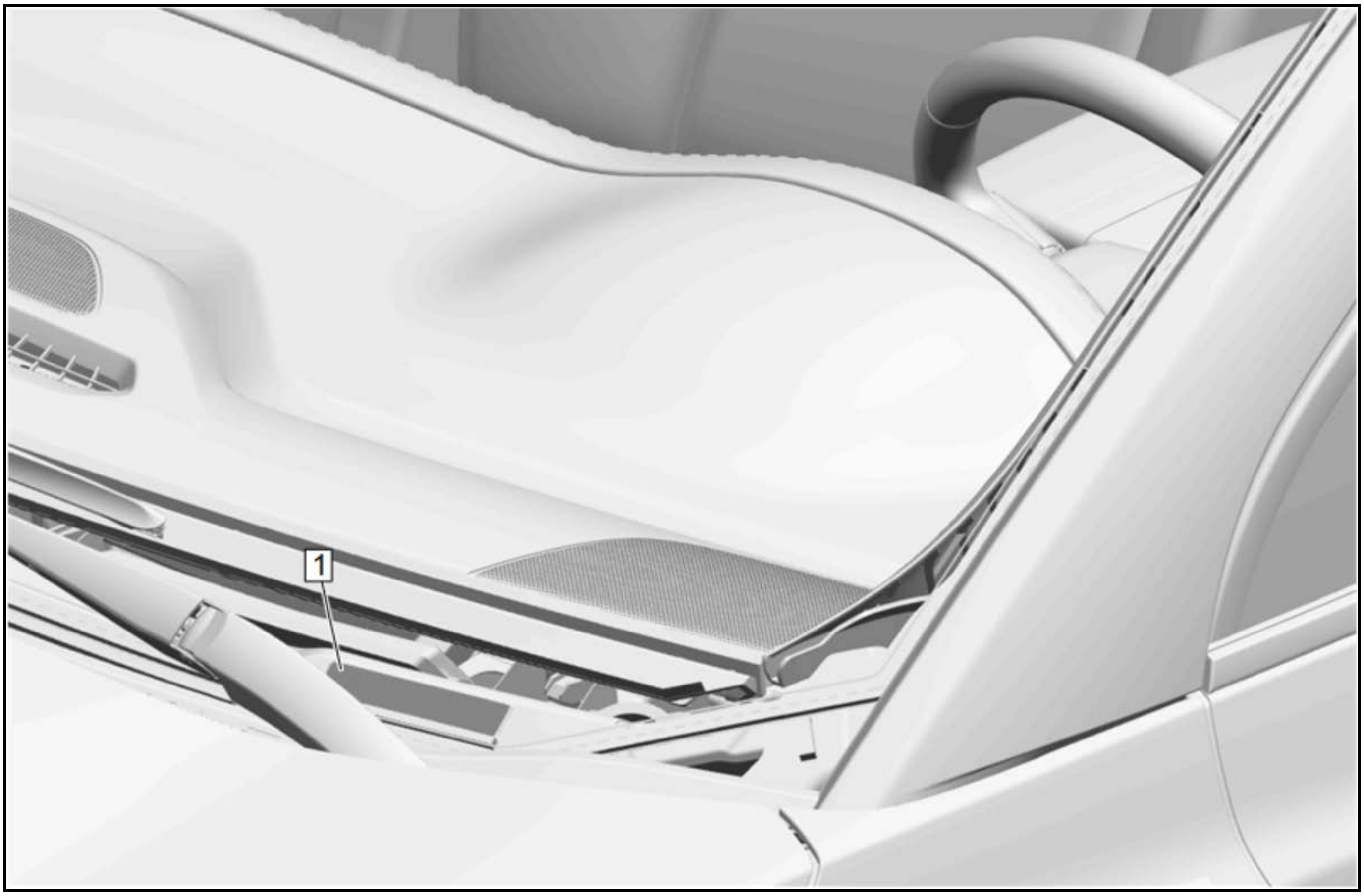
General Information

General Information

Introduction

Vehicle, Engine and Transmission ID and VIN Location, Derivative and Usage

Object-ID=6282625 Owner=Harris, Earlo LMD=24-Feb-2023 LMB=McMillan, Tim



5138041

The vehicle identification number (VIN) plate is the legal identifier of the vehicle. The VIN plate is located on the upper left corner of the instrument panel. The VIN number can be seen through the windshield from the outside of the vehicle:

Vehicle Identification Number (VIN) System

Position	Definition	Character	Description
1	Country of Origin	1	United States
2	Manufacturer	G	General Motors
3	Vehicle Brand/Type	D	GMC Incomplete Truck
		T	GMC Truck

Vehicle Identification Number (VIN) System (cont'd)

Position	Definition	Character	Description
4	GVWR/Brake System/Body Style	N	6,001–7,000 lbs/Hydraulic/Commercial Special Cutaway, Two (2) Door Cab pick-up, Motor Home Chassis
		P	6,001–7,000 lbs/Hydraulic/Crew Cab
		R	6,001–7,000 lbs/Hydraulic/Extended Cab
		U	7,001–8,000 lbs/Hydraulic/Crew Cab
		V	7,001–8,000 lbs/Hydraulic/Extended Cab
		0	9,001–10,000 lbs/Hydraulic/Commercial Special Cutaway, Two (2) Door Cab pick-up, Motor Home Chassis
		1	9,001–10,000 lbs/Hydraulic/Crew Cab
		2	9,001–10,000 lbs/Hydraulic/Extended Cab
		3	10,001–14,000 lbs/Hydraulic/Commercial Special Cutaway, Two (2) Door Cab pick-up, Motor Home Chassis
		4	10,001–14,000 lbs/Hydraulic/Crew Cab
		5	10,001–14,000 lbs/Hydraulic/Extended Cab
5/6	Chassis/Series	8/L	GMC Sierra 2500 Fleet/Base 2WD
		8/M	GMC Sierra 2500 SLE 2WD
		8/N	GMC Sierra 2500 SLT 2WD
		8/P	GMC Sierra 3500 Fleet/Base 2WD
		8/R	GMC Sierra 3500 SLE 2WD
		8/S	GMC Sierra 3500 SLT 2WD
		9/L	GMC Sierra 2500 Fleet/Base 4WD
		9/M	GMC Sierra 2500 SLE 4WD
		9/N	GMC Sierra 2500 SLT 4WD
		9/P	GMC Sierra 2500 SLT 4WD
		9/R	GMC Sierra 2500 Denali 4WD
		9/S	GMC Sierra 3500 Fleet/Base 4WD
		9/T	GMC Sierra 3500 SLE 4WD
		9/U	GMC Sierra 3500 SLT 4WD
		9/V	GMC Sierra 3500 AT4 SRW 4WD
		9/W	GMC Sierra 3500 Denali 4WD
		9/9	GMC Sierra 4WD, (Non-US, Non-Canada)
7	Restraint System	E	RPO AY0 – Active Manual Belts, Airbags – Driver and Passenger – Front (1st row), Front Seat Side (1st row), Roof Side (all seating rows)
8	Engine Type	Y	L5P - ENGINE DIESEL, 8 CYL, 6.6L, DI, V8, TURBO, DURAMAX, GEN 5
		7	L8T - ENGINE GAS, 8 CYL, 6.6L, SIDI, VVT, CAST IRON
9	Check Digit	—	Check Digit
10	Model Year	R	2024
11	Plant Location	F	Flint, Michigan, USA
12–17	Plant Sequence Number	—	Plant Sequence Number

6.6L (L5P) Engine ID and VIN Derivative Location

Engine Identification

6.6L (L8T) Engine ID and VIN Derivative Location

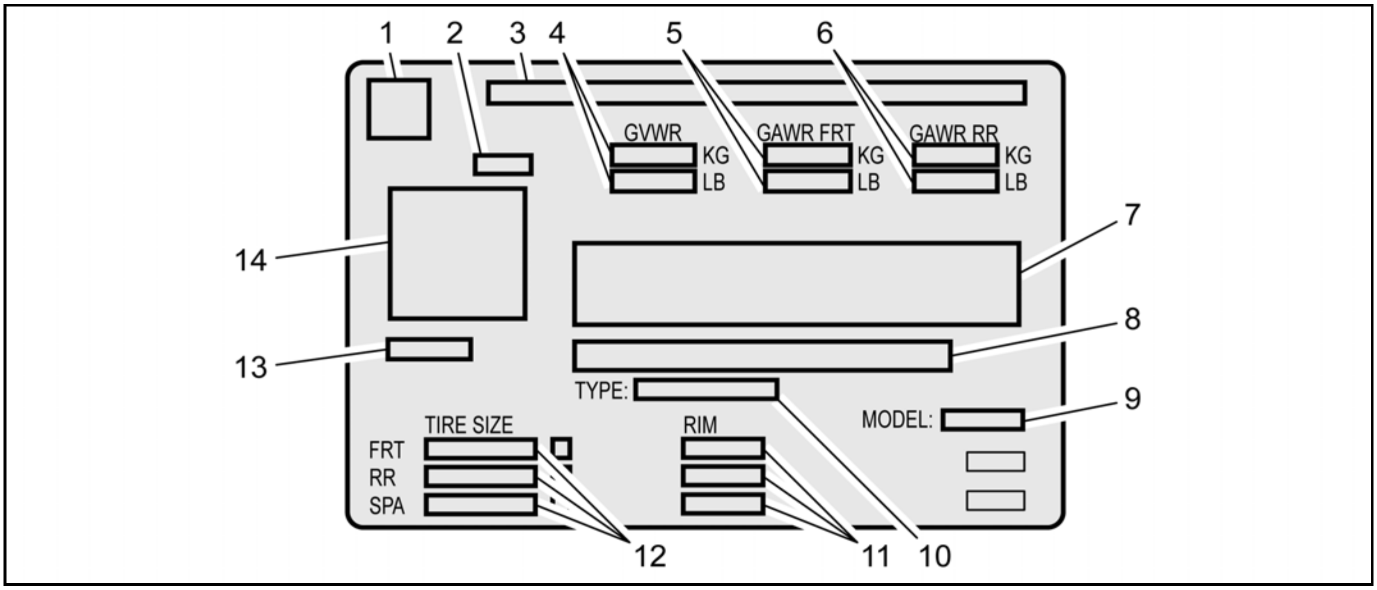
Engine Identification

10L1000 (MGM MGU) Transmission ID and VIN Derivative Location

Transmission Identification Information

Vehicle Certification, Tire Placard, and Anti-Theft Label

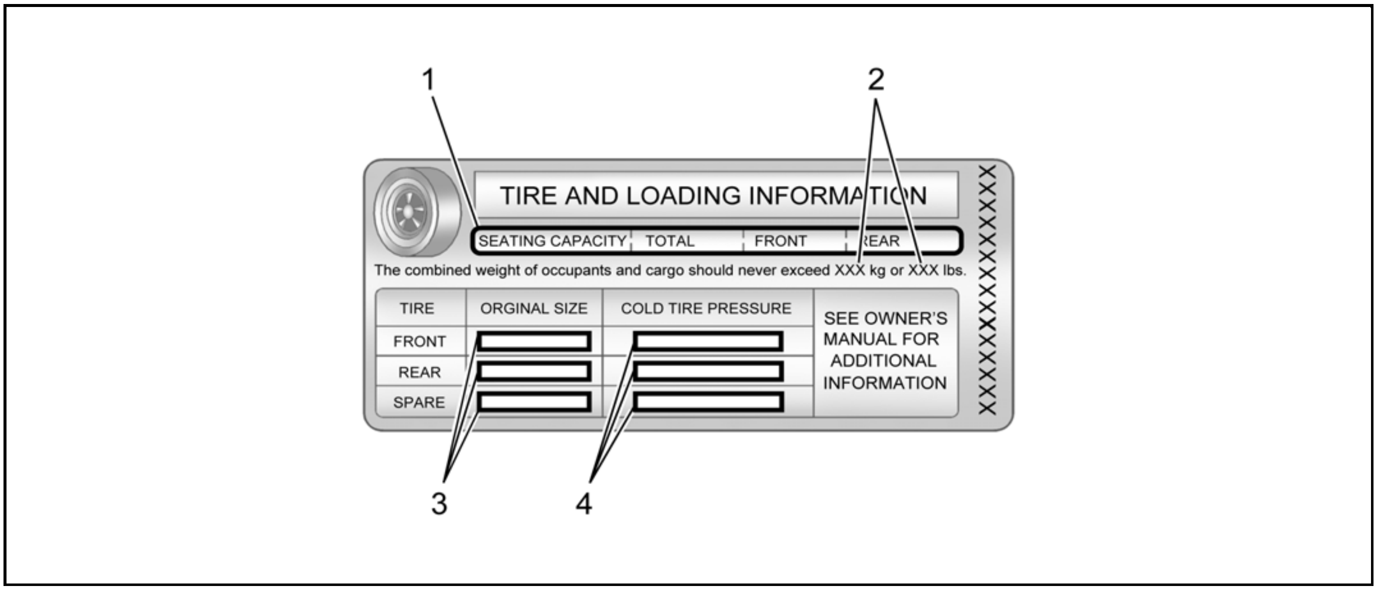
Object-ID=4992863 Owner=Harrison, Judith LMD=28-Feb-2018 LMB=McMillan, Tim



4992823

Vehicle Certification Label

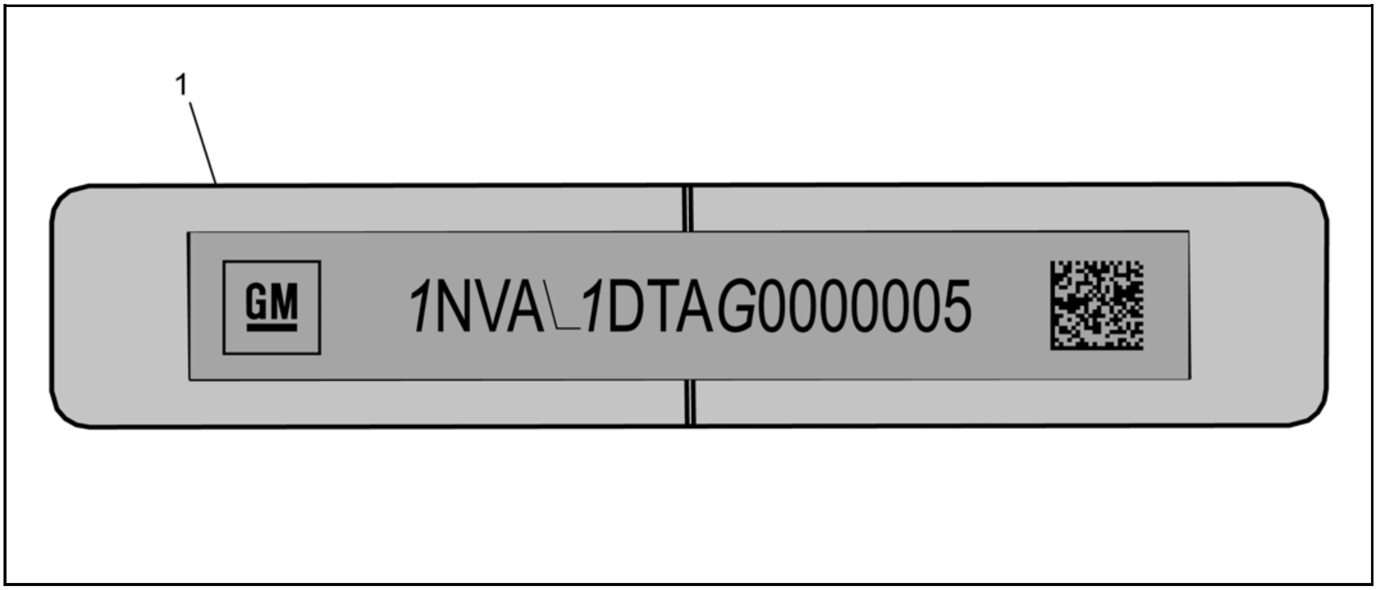
Callout	Description
A vehicle-specific Certification label is attached to the vehicle's center pillar (B-pillar) and displays the following assessments:	
1	Logo
2	Final Date of Manufacture (Month and Year MM/YY) Date of manufacture is to reflect the date that the vehicle is counted as built. In those cases where a replacement label is needed, the replacement label should reflect the actual build date not the date of replacement.
3	Name of Manufacturer
4	Maximum Gross Vehicle Weight Rating (GVWR)
5	Maximum Gross Axle Weight Rating (GAWR) - Front
6	Maximum Gross Axle Weight Rating (GAWR) - Rear
7	Certification Statement
8	Vehicle Identification Number (VIN)
9	Engineering Model Number
10	Vehicle Class Type (Pass Car, etc.)
11	Original Equipment Rim Size
12	Original Equipment Tire Size
13	Paint Code
14	QR Code Once the QR code is scanned, the information will appear in this order on your smartphone or laptop: VIN, Model Year, Model, Build Month, Year, Engineering Book, Vehicle Order Number, 3 Digit RPO Codes sorted alphanumerically and the Paint Code (same code appears the lower left of the QR code)


1
2
TIRE AND LOADING INFORMATION
SEATING CAPACITY
TOTAL
FRONT
REAR
The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs.
TIRE
ORGINAL SIZE
COLD TIRE PRESSURE
FRONT
REAR
SPARE
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
XXXXXXXXXXXXX
3
4

4962282

Tire Placard

Callout	Description
A vehicle-specific Tire and Loading Information label is attached to the vehicle's center pillar (B-pillar) and displays the following assessments:	
1	Specified Occupant Seating Positions
2	Maximum Vehicle Capacity Weight
3	Original Equipment Tire Size
4	Tire Pressure, Front, Rear, and Spare (Cold)


1
GM
1NVA_1DTAG0000005

4962289

Anti-Theft Label

Callout	Description
This legal identifier is in the front corner of the instrument panel, on the driver side of the vehicle. It can be seen through the windshield from outside. The Vehicle Identification Number (VIN) also appears on the Vehicle Certification and certificates of title and registration.	
1	Vehicle Identification Number (VIN)

RPO Code List

Object-ID=6215389 Owner=Harris, Earlo LMD=02-Mar-2023 LMB=Harris, Earlo

The following table provides the description of the Regular Production Option (RPO) codes that are available on the vehicle. The vehicle's RPO list is printed on the Service Parts Identification Label.

RPO	Description
00C	IDENTIFICATION-NOT EQUIPPED WITH WIRELESS CHARGING MODULE
00H	IDENTIFICATION-EQUIPPED WITH HVAC MODULE WITH BRUSHED MOTOR
00J	IDENTIFICATION-EQUIPPED WITH SENSING DIAGNOSTIC MODULE DESIGN 2
00M	IDENTIFICATION-NOT EQUIPPED W/ FRONT 4-WAY LUMBAR & MASSAGING SEAT
00R	IDENTIFICATION-NOT EQUIPPED WITH REAR HEAT SEATS
00S	IDENTIFICATION-NOT EQUIPPED WITH SIDE BLIND ZONE ALERT
00V	IDENTIFICATION-NOT EQUIPPED WITH FRONT HEAT/VENT SEATS
00Y	IDENTIFICATION-NOT EQUIPPED WITH REAR PARK ASSIST
00Z	IDENTIFICATION-NOT EQUIPPED WITH FRONT AND REAR PARK ASSIST
1SA	PACKAGE-OPTION 01
3SA	PACKAGE-SLE OPTION 1
4AA	INTERIOR TRIM-JET BLACK
4B4	INTERIOR TRIM-JET BLACK/CERAMIC WHITE
4DK	INTERIOR TRIM-JET BLACK / VECCHIO BASE SAUVAGE PRINT
4DL	INTERIOR TRIM-ATMOSPHERE / BROWNSTONE
4F2	INTERIOR TRIM-JET BLACK / KALAHARI
4JJ	INTERIOR TRIM-GIDEON/VY DK ATMOSPHERE
4SA	PACKAGE-SLT OPTION 1
4SB	PACKAGE-SLT OPTION 2
5A7	WHEEL SPARE-NONE
5JY	ACCESSORY-TONNEAU - RR COMPT - SOFT FOLDING
5LE	ACCESSORY-GARAGE DOOR OPENER
5SA	PACKAGE-DENALI OPTION 1
5SB	PACKAGE-DENALI OPTION 2
5VE	ACCESSORY-EXHAUST TIP - DESIGN 5
5VG	ACCESSORY-EXHAUST TIP - DESIGN 4
5VI	ACCESSORY-TIE DOWN RINGS - CARGO AREA
63G	ACCESSORY-TAILGATE ASSIST LIGHTING
65C	LABEL, WARNING-CALIFORNIA, PROP 65 COMPLIANT
6K5	SALES PACKAGE-CONVENIENCE II
77S	LABEL, REGULATORY-CALIFORNIA, SECTION 177 STATES
9J4	BUMPER RR-(NONE)
9L3	TIRE SPARE-NONE
9L7	EQUIPMENT-ACSRY WRG JUNC BLK
A2S	ADJUSTER DRIVER SEAT-4WAY, DISCONT MAN RECLINE, MAN FORE/AFT
A2X	ADJUSTER DRIVER SEAT-8WAY, PWR RECLINE, PWR FORE/AFT, PWR HEIGHT, PWR TILT
A45	MEMORY-SEAT ADJUSTER, MIRROR, POWER, DRIVER, PERSONALIZATION
A48	WINDOW RR-FULL WIDTH, SLIDING, POWER
A50	SEAT-FRT BKT
A60	LOCK CONTROL RR CMPT-LID, TAILGATE, KEY ACTIVATED
A68	SEAT RR-SPLIT, FOLDING
A7E	ADJUSTER PASS ST-4WAY, DISCONT MAN RECLINE, MAN FORE/AFT
A7K	ADJUSTER PASS ST-8WAY, PWR RECLINE, PWR FORE/AFT, PWR HEIGHT, PWR TILT
AAK	ACCESSORY-FLOOR LINER - CONTOURED - ALT DESIGN 1
AAO	ACCESSORY-FLOOR LINER - CONTOURED - ALT DESIGN 2
AED	WINDOW REG PASS DR-POWER OPERATED,EXPRESS DOWN (DO NOT USE NEXT NEW MAJOR)
AEF	WINDOW REG PASS DR-POWER OPERATED, EXPRESS UP/DOWN (DO NOT USE NEXT NEW MAJOR)
AEQ	WINDOW REG REAR DR-POWER OPERATED, EXPRESS DOWN (DO NOT USE NEXT NEW MAJOR)
AF6	CONTROL-SEAT, MASSAGE, DRIVER
AHE	BOLSTER DRVR-SEAT, POWER
AHH	BOLSTER PASS-SEAT, POWER

RPO	Description
AKE	CONTROL-SEAT, MASSAGE, PASSENGER
AKO	WINDOW TYPE-PRIVACY
AKP	WINDOW TYPE-SOLAR ABSORBING
AL0	SENSOR INDICATOR-INFLATABLE RESTRAINT, FRT PASS/CHILD PRESENCE DETECTOR
ANM	SALES PACKAGE-FIRE AND RESCUE
AQN	CONTROL-SEAT, POWER SHOULDER ADJUST, DRIVER
AQQ	LOCK CONTROL, ENTRY-REMOTE ENTRY, EXTENDED RANGE (MY 09 AND FUTURE)
AQS	CONTROL-SEAT, POWER SHOULDER ADJUST, PASS
AU3	LOCK CONTROL-SIDE DR, ELEC
AVI	RESTRAINT PROVISIONS-ADJUSTABLE GUIDE LOOP
AVJ	LOCK CONTROL, ENTRY-REMOTE ENTRY, EXTENDED RANGE, PASSIVE ENTRY, FRONT DOORS
AVK	LUMBAR DRIVER-SEAT, POWER, 4 WAY
AVU	LUMBAR PASSENGER-SEAT, POWER, 4-WAY
AXG	WINDOW REG DRVR DR-POWER OPERATED, EXPRESS UP/DOWN (DO NOT USE NEXT NEW MAJOR)
AXK	VEHICLE TYPE-TRUCK
AY0	RESTRAINT SYSTEM-SEAT, INFLATABLE, DRIVER & PASS FRT, SEAT SIDE, ROOF SIDE
AZ3	SEAT-FRT SPLIT, DRIVER, PASS, FULL FEATURE CENTER
B1J	LINER-RR WHEELHOUSE
B26	SALES PACKAGE-SAFETY PACKAGE VAR. 1
B30	COVERING FLOOR-CARPET
B32	COVERING FRT-FLOOR MATS, AUX
B33	COVERING REAR-FLOOR MATS, AUX
B34	COVERING FRT-FLOOR MATS, CARPETED INSERT
B35	COVERING REAR-FLOOR MATS, CARPETED INSERT
B3L	STEPS, RUNNINGBOARD-SIDE, RETRACTABLE, POWER, BLACK
B59	SALES PACKAGE-FUNCTIONAL PACKAGE
BG9	COVERING FLOOR-RUBBER
BHP	COVER-WINTER GRILLE
BKE	COVERING REAR-FLOOR MATS, FLOOR LINER CARPET INSERT
BKF	COVERING FRT-FLOOR MATS, FLOOR LINER CARPET INSERT
BRS	STEPS, RUNNINGBOARD-SIDE, RETRACTABLE, POWER, BRIGHT
BTM	SWITCH-START, KEYLESS

RPO	Description
BTV	REMOTE START-VEHICLE
BVQ	STEPS, RUNNINGBOARD-SIDE, TUBULAR, CHROME
BWN	STEPS-CORNER ASSIST, BUMPER
C32	HEATER AIR SYSTEM-HEATING/ DEFROSTER SYSTEM, REINFORCED, ELECTRIC
C49	DEFOGGER-RR WINDOW, ELECTRIC
C59	VENT-AIR, CONSOLE, RR
C67	HVAC SYSTEM-AIR CONDITIONER FRT, ELECTRONIC CONTROLS
CE1	WIPER SYS WINDSHIELD-PULSE, MOISTURE SENSITIVE
CF5	ROOF-SUN, GLASS, SLIDING, ELEC (DO NOT USE NEXT NEW MAJOR)
CGN	LINER-PUBX, SPRAY ON
CGO	COLLECTION GVW-COLLECTION GVW LESS THAN OR EQUAL TO 10,000 LBS
CJ2	HVAC SYSTEM-AIR CONDITIONER FRT, AUTO TEMP CONT, AUX TEMP CONT
CMD	PLANT CODE-FLINT, MI, USA (TRK)
CMT	SALES PACKAGE-GOOSE NECK/5TH WHEEL PREP AND CAMERA
CTT	HITCH ASSIST-GUIDELINES
CWM	SALES PACKAGE-TECHNOLOGY
CXH	SALES PACKAGE-INTERIOR LEATHER PACKAGE
D07	CONSOLE-FRT COMPT, FLOOR, CUSTOM
D31	MIRROR I/S R/V-TILT
D72	HANDLE O/S DOOR-BLACK
D75	HANDLE O/S DOOR-BODY COLOR
DBG	MIRROR O/S-MAN EXT, PWR ADJ, HEAT, MAN FOLD, TURN SIG, AUX CLR, FLAT DRVR/PASS, WFOV DRVR/PASS
DD8	MIRROR I/S R/V-LT SENSITIVE
DH6	MIRROR I/S FRT VAN-LH & RH, SUNSHADE, ILLUM (DO NOT USE NEXT NEW MAJOR)
DLN	MIRROR O/S-LH & RH, ELEC REMOTE CONTROL, HEATER, MANUAL FOLD, FLAT/DRVR, FLAT/PASS
DNS	EQUIPMENT-SUPPLIER INSTALLED
DP6	MIRROR PROVISIONS-HOUSING, PAINTED
DP9	MIRROR PROVISIONS-HOUSING, CHROME
DRC	MIRROR I/S R/V-LT SENSITIVE, PARTIAL VIDEO DISPLAY
DRZ	MIRROR I/S R/V-LT SENSITIVE, FULL VIDEO DISPLAY
DUD	MIRROR O/S-LH & RH, WFOV, MANUAL, MAN FOLD, MAN EXT, FLAT/COVN DR/PASS

RPO	Description
DWI	MIRROR O/S-LH&RH,WFOV,MAN EXT, PWR FLD,HTD,TURN SIG,R/CON,ELEC, AUX CARGO,AUX CLR,PERM LIGHT,FLAT LT SENS DR/PAS
DZC	MIRROR O/S-LH&RH,WFOV,PWR EXT, PWR FOLD,HTD,TURN SID,R/CON MEM, AUX CARGO,AUX CLR,PERM LT,FLAT LT SENS DR/PAS
DZW	CHASSIS-DUAL REAR WHEEL, RIDE & HANDLING
E20	HANDLE O/S DOOR-CHROME
E63	BODY EQUIPMENT-FLEETSIDE PICK-UP BOX
EF7	COUNTRY-UNITED STATES OF AMERICA (USA)
F48	CHASSIS DRIVE LINE-ALL WHEEL DRIVE (AWD)/FOUR WHEEL DRIVE(4WD), DRIVER SELECT
F60	SPRING FRONT-HEAVY DUTY
FE9	CERTIFICATION-EMISSION, FEDERAL
FHS	VEHICLE FUEL-GASOLINE E85
FHX	VEHICLE FUEL-DIESEL B20
FJW	VEHICLE FUEL-GASOLINE E15
FPF	EQUIPMENT-EMISSION-DIESEL DPF MANUAL REGENERATION
G1W	PRIMARY COLOR-EXTERIOR, ABALONE WHITE TRICOAT(140X)
G48	PRIMARY COLOR-EXTERIOR, GALACTICA MET-1 (613G)
G6M	PRIMARY COLOR-EXTERIOR, RUSH MET-1 (618G)
G7C	PRIMARY COLOR-EXTERIOR, PULL ME OVER RED SOLID (130X)
G80	AXLE POSITRACTION-LIMITED SLIP
GAZ	PRIMARY COLOR-EXTERIOR, SUMMIT WHITE (G) 8624
GBA	PRIMARY COLOR-EXTERIOR, BLACK (G) 8555
GFF	TRIM PACKAGE-BASE
GFG	TRIM PACKAGE-AT4
GFI	TRIM PACKAGE-SLE
GFU	TRIM PACKAGE-SLT
GFW	TRIM PACKAGE-DENALI
GFY	TRIM PACKAGE-DENALI ULTIMATE
GNO	PRIMARY COLOR-EXTERIOR, BARB WIRE MET -1 (633D)
GNT	PRIMARY COLOR-EXTERIOR, RADIANT RED TINT MET-1 (170H)
GT4	AXLE REAR-3.73 RATIO
GTY	AXLE-WIDE TRACK
GU6	AXLE REAR-3.42 RATIO
GXD	PRIMARY COLOR-EXTERIOR, SHARKSKIN MET-1 (130H)
GXP	PRIMARY COLOR-EXTERIOR, COSMONAUT MET-1 (136H)

RPO	Description
H0U	INTERIOR TRIM CONFIG-CLOTH, LEVEL 2, JET BLACK
H0Y	INTERIOR TRIM CONFIG-LEATHER, LEVEL 1, JET BLACK
H1T	INTERIOR TRIM CONFIG-CLOTH, LEVEL 1, JET BLACK
H1Y	INTERIOR TRIM CONFIG-LEATHER, LEVEL 2, JET BLACK
H24	INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, ATMOSPHERE/BROWNSTONE
H2G	INTERIOR TRIM CONFIG-VINYL, LEVEL 1, JET BLACK
H2X	INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, JET BLACK
H40	INTERIOR TRIM CONFIG-LEATHER, LEVEL 10, JET BLACK/VECCHIO BASE SAUVAGE PRINT
H9J	INTERIOR TRIM CONFIG-LEATHER, LEVEL 9, JET BLACK/CERAMIC WHITE
HS1	ALERT-SAFETY HAPTIC SEAT
HV5	INTERIOR TRIM CONFIG-CLOTH, LEVEL 2, GIDEON/VY DK ATMOSPHERE
HVC	INTERIOR TRIM CONFIG-LEATHER, LEVEL 1, GIDEON/VY DK ATMOSPHERE
HVD	INTERIOR TRIM CONFIG-LEATHER, LEVEL 2, JET BLACK/KALAHARI
HVE	INTERIOR TRIM CONFIG-LEATHER, LEVEL 2, GIDEON/VY DK ATMOSPHERE
ICY	ACCESSORY-ARCTIC HOSE - POWER STEERING
IOK	RADIO-INFOTAINMENT SYSTEM - 3.X MID/ HIGH HMI,ENHANCED CONNECTIVITY 2.0, VOICE RECOGNITION
IOR	RADIO-INFOTAINMENT SYSTEM - 3.X LOW HMI, MIDLEVEL CONNECTIVITY 3.X
J24	ENGINEERING YEAR-2024
J61	BRAKE SYSTEM-POWER, FRT & RR DISC, ABS, 17"
JBP	BRAKE LINING WEAR SY-LIFE SPAN PROGNOSTIC INDICATOR
JHD	BRK APL CTRL FEATURE-HILL DESCENT, GEAR HOLD
JL1	BRK APL CTRL FEATURE-INTEGRATED TRAILER BRAKE
K05	HEATER ENG-BLOCK
K1O	FILTER MONITOR-ENGINE AIR
K34	CRUISE CONTROL-AUTOMATIC, ELECTRONIC
K40	ENGINE BRAKE-EXHAUST
K47	AIR CLEANER-HIGH CAPACITY
K4C	CHARGER-INDUCTIVE PORTABLE WIRELESS DEVICE
K4Z	BATTERY-LN3, AGM, 12V, 70AH, 700 CCA, AUX
KA1	HEATER SEAT FRT-DRVR & PASS
KA6	HEATER SEAT-REAR

RPO	Description
KC4	COOLING SYSTEM-ENG OIL
KC5	RECEPTACLE-ELECTRICAL, ACCESSORY
KC9	RECEPTACLE PUBX-ELECTRICAL, 110 VOLT
KGU	MODULE-UPFITTER, SERIAL DATA GATEWAY
KHF	GENERATOR-170 AMP AND 220 AMP, DUAL
KI3	STEERING WHEEL HEAT-AUTOMATIC
KI4	RECEPTACLE I/P-ELECTRICAL, 110 VOLT
KNP	COOLING SYSTEM-TRANS, HD
KQV	HEATER-SEAT, VENTED, FRT (DO NOT USE NEXT NEW MAJOR, USE KU9)
KSG	CRUISE CONTROL-AUTOMATIC, ADAPTIVE, WITH STOP/GO
KW5	GENERATOR-220 AMP
KW7	GENERATOR-170 AMP
L5P	ENGINE-DIESEL, 8 CYL, 6.6L, DI, V8, TURBO, DURAMAX, GEN 5, VAR. 1
L8T	ENGINE-GAS, 8 CYL, 6.6L, SIDI, VVT, CAST IRON
M1F	POWER TAKE OFF-RR PTO
MAH	MARKETING AREA-US, PUERTO RICO/USVI
MGM	TRANSMISSION-AUTO 10 SPD, 10L1000, GRX, GEN 1, VAR 1
MGU	TRANSMISSION-AUTO 10 SPD, 10L1000, GRX, GEN 2, VAR 2
MKM	TRANSMISSION-AUTO 10 SPD, RWD 4.54 1ST, 2.86 2ND, 2.06 3RD, 1.71 4TH, 1.48 5TH, 1.26 6TH, 1.00 7TH, 10L1001
N06	STEERING COLUMN LOCK-ELECTRICAL
N2L	FUEL TANK-REAR TANK 40 GAL (151L)
N2M	FUEL TANK-FRONT TANK 23.5 GAL (89L)
N2N	FUEL TANK-DUAL TANK, FRONT TANK 23.5 GAL (89L) REAR TANK 40 GAL (151L)
N33	STEERING COLUMN-TILT TYPE
N37	STEERING COLUMN-TILT, TELESCOPING
N57	STEERING WHEEL-SYNTHETIC, 4 SPOKE, THIN, ROUND
N79	WHEEL SPARE-18 X 8.0, J, STEEL, DESIGN 2
NB5	EXHAUST SYSTEM-SINGLE (DO NOT USE NEXT NEW MAJOR, USE NC2)
NE1	CERTIFICATION-EMISSION, GEOGRAPHICALLY RESTRICTED REGISTRATION
NHT	PERFORMANCE PACKAGE-ENHANCED TOWING
NK5	STEERING WHEEL-STANDARD
NP5	STEERING WHEEL-LEATHER WRAPPED
NQF	TRANSFER CASE-ELECTRIC SHIFT CONT, TWO SPEED, ALUM

RPO	Description
NQH	TRANSFER CASE-ACTIVE, TWO SPEED, SWITCH ACTIVATED, ALUM
NRW	EMISSION SYSTEM-CALIFORNIA, SULEV170
NTB	EMISSION SYSTEM-FEDERAL, TIER 3
NU9	EMISSION SYSTEM-CALIFORNIA, ULEV200
NUM	EMISSION SYSTEM-CALIFORNIA, LEV3 MDV 10-14K GVW
NV8	STEERING-POWER, MAGNETIC SPEED, VARIABLE ASSIST
NZ4	WHEEL SPARE-17 X 7.5, J, STEEL, DESIGN 2
NZZ	SALES PACKAGE-SKID PLATE, "OFF ROAD" SPORT
P03	COVER, WHEEL-VAR 3
P06	TRIM DISCS-WHEEL
PPW	PHONE PROJECTION-PHONE PROJECTION WIRELESS
PTO	ENGINE CONTROL-POWER TAKE OFF (PTO) CONTROLS
PTT	TRAILER TIRE PRESSUR-MANUAL LEARN
PXD	WHEEL-18 X 8.0, J, ALUMINUM, DESIGN 25
PYN	WHEEL-17 X 7.5, J, STEEL, DESIGN 7
PYQ	WHEEL-17 X 7.5, J, ALUMINUM, DESIGN 7
PYT	WHEEL-18 X 8.0, J, STEEL, DESIGN 2
PYW	WHEEL-17 X 6.5, J, STEEL, DESIGN 2
PZ8	IMAGE ADJUSTMENT-HITCH VIEW
Q21	WHEEL-18 X 6.5, J, ALUMINUM, DESIGN 1
Q7F	WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 5
Q7H	WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 7
Q7N	WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 10
Q7Q	WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 12
Q7R	WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 13
QF6	TIRE ALL-LT275/70R18 E 125/122 S BW AT VAR 1
QF9	TIRE ALL-LT275/65R20 E 126/123 S BW AT VAR 1
QFG	TIRE ALL-LT275/65R20 E 126/123 S BW OOR VAR 1
QG3	TIRE ALL-LT275/70R18 E 125/122 R BW OOR VAR 1
QHQ	TIRE ALL-LT245/75R17 E 121/118R BW ALS
QHY	TIRE ALL-LT235/80R18 E 121/118R BW AT
QK1	GATE TYPE-PUBX END STANDARD
QK2	GATE TYPE-PUBX END ENHANCED
QMG	TIRE ALL-LT305/70R18 E 126/123 R BW OOR VAR 1

RPO	Description
QNB	WHEEL SPARE-18 X 9.0, J, ALUMINUM, DESIGN 1
QNN	WHEEL SPARE-18 X 9.0, J, ALUMINUM, DESIGN 3
QNZ	TIRE SPARE-LT305/70R18 E 126/123 R BW OOR VAR 1
QT2	GATE FUNCTION-MANUAL
QT5	GATE FUNCTION-MANUAL ASSIST POWER RELEASE
QT6	GATE FUNCTION-POWER
QXT	TIRE ALL-LT265/70R17 E 121/118 Q BW AT
QZT	TIRE ALL-LT235/80R17 E 120/117R BW AT
R7O	SEAT RR-SPLIT, FOLDING, BASE STORAGE
R88	ACCESSORY-ILLUMINATED EMBLEM - EXTERIOR - DESIGN 2
RDI	ACCESSORY-KEYLESS ENTRY
REM	ACCESSORY TIRE-TIRE ALL - LT275/65R20 E 126/123 S BW AT VAR 1
RIA	ACCESSORY-FLOOR LINER - CONTOURED
RIK	ACCESSORY-BADGE - EXTERIOR, PACKAGE, DESIGN 1
RN2	ACCESSORY-ILLUMINATED EMBLEM - EXTERIOR - DESIGN 1
RN6	WHEEL-22 X 8.5, J, STEEL, DESIGN 1
RSR	OCCUPANT DETECT SYS-REAR SEAT, DOOR ACTIVATED
RVG	ACCESSORY-ADAPTER - TRAILER HARNESS
RVK	ACCESSORY-AIRBOX
RVQ	ACCESSORY-ASSIST STEPS - TUBULAR - OVAL - BLACK
RVS	ACCESSORY-ASSIST STEPS - TUBULAR - ROUND - BLACK
RW9	ACCESSORY-BED STORAGE BOX - SIDE FULL LENGTH - COMPOSITE
RWA	ACCESSORY-BED STORAGE BOX - FOAM
RWL	CHASSIS DRIVE LINE-REAR WHEEL DRIVE (RWD)
RWS	ACCESSORY-FLOOR MATS - CARPET
RXC	ACCESSORY-AIR, POLLUTANT, ODOR, FINE DUST, ALLERGEN
RXJ	ACCESSORY-CENTER CAP - WHEEL - DESIGN 2
RXQ	ACCESSORY-CONVENIENCE NET - BED MOUNTED
RYT	ACCESSORY-FIRST AID KIT
S08	ACCESSORY-HIGHWAY SAFETY KIT
S0M	ACCESSORY-ILLUMINATED DOOR SILLS
S0T	ACCESSORY-INTERIOR TRIM KIT - ALTERNATE FINISH 1
S1O	ACCESSORY-CONTAINER - LOCKABLE STORAGE - INTERIOR

RPO	Description
S3I	ACCESSORY-LAMPS - PERIMETER ILLUMINATION
S41	ACCESSORY-LINER - WHEEL HOUSE
S47	ACCESSORY-LUG NUTS
S6L	ACCESSORY-PROTECTOR - ROCKER PANEL
S6N	ACCESSORY-RECEIVER COVER - TRAILER HITCH
S6P	ACCESSORY-REMOTE START KIT
S6Z	ACCESSORY-SEAT COVER - TAILORED - ALTERNATE MATERIAL
SAF	LOCK-SPARE TIRE, HOIST SHAFT
SAK	ACCESSORY-WHEEL - 22 X 8.5 - J - ALUMINUM DESIGN 1
SAM	ACCESSORY-SKID PLATES
SAY	ACCESSORY-WHEEL - 22 X 8.5 - J - ALUMINUM DESIGN 2
SBL	ACCESSORY-WHEEL - 22 X 8.5 - J - ALUMINUM DESIGN 3
SBZ	ACCESSORY-SPORT PEDAL KIT
SD5	ACCESSORY-TIRE PRESSURE MONITOR
SDE	ACCESSORY-TRAILER HITCH - REMOVABLE
SDI	ACCESSORY-TRIANGLE - REFLECTIVE
SF6	ACCESSORY-WHEEL FLARES - ALTERNATE DESIGN - PAINTED
SFE	ACCESSORY-WHEEL LOCKS
SFJ	ACCESSORY-WINDOW SHADES - REFLECTIVE
SFZ	ACCESSORY-EMBLEM - EXTERIOR - DESIGN 1
SHH	ACCESSORY-WHEEL - 20 X 8.5 - J - ALUMINUM - DESIGN 1
SHL	ACCESSORY-WHEEL - 20 X 8.5 - J - ALUMINUM - DESIGN 2
SIE	ACCESSORY-PUBX TIERED STORAGE
SIL	ACCESSORY-RSE - PORTABLE MEDIA CONNECTIVITY PKG - W/INTEGRATED POWER
SJ9	ACCESSORY-GRILLE / GRILLE INSERTS - ALTERNATE FINISH 1
SK1	WHEEL SPARE-18 X 6.5, J, STEEL, DESIGN 1
SKP	WHEEL SPARE-17 X 6.5, J, STEEL, DESIGN 1
SKW	ACCESSORY-WHEEL - 20 X 8.5 - J - ALUMINUM - DESIGN 6
SKX	ACCESSORY-WHEEL - 20 X 8.5 - J - ALUMINUM - DESIGN 7
SL7	ACCESSORY-PUBX LADDER / UTILITY RACK STANCHIONS
SNO	ACCESSORY-HITCH COMPLETION PKG - GOOSENECK
SNR	SEAT RR-SPLIT, FOLDING, DELUXE STORAGE

RPO	Description
SPY	ACCESSORY-LUG NUTS - ALT FINISH
SPZ	ACCESSORY-WHEEL LOCKS - ALT FINISH
SQ9	ACCESSORY-WHEEL - 20 X 8.5 - J - ALUMINUM - DESIGN 8
SRW	CHASSIS-SINGLE REAR WHEEL, RIDE & HANDLING
SUR	ACCESSORY-TRAILER TIRE PRESSURE MONITOR
T3U	LAMP FRT FOG-FRT FOG
T4L	HEADLAMPS-LED
T4Z	SEAT BELT SAFETY SYS-SHIFTER INTERLOCK, GEN 1, NON-CUSTOMIZABLE
T8Z	SEAT BELT SAFETY SYS-SHIFTER INTERLOCK, GEN 3, INFOTAINMENT CUSTOMIZABLE
TDM	MODE DRIVER SETTINGS-TEEN DRIVER, INFOTAINMENT
TQ5	HEADLAMP HIGH BEAM-AUTO CONTROL
TRG	VISION TRAILER-INSIDE VIEW, REAR VIEW
TRO	ACCESSORY-CAMERA PKG - TRAILERING AUX MOUNTED
TUF	ORNAMENTATION-EMBLEM, "TEXAS EDITION"
U01	LAMP-FIVE, ROOF MARKER, TRUCK
U12	LAMP-EXTR, OSRV MIRROR, TASK
U2J	DIGITAL AUDIO SYSTEM-S-BAND - NONE
U2K	DIGITAL AUDIO SYSTEM-S-BAND
U73	ANTENNA-FIXED, RADIO
U95	SPEAKER SYSTEM-2, BASE
UBC	RECPT USB ARMREST-DUAL, CHARGE, DATA
UBD	RECPT USB FLR CNSL F-DUAL, CHARGE, DATA
UBI	RECPT USB FLR CNSL R-DUAL, CHARGE
UBJ	RECPT USB IP LWR-DUAL, CHARGE, DATA
UD5	PARK ASSIST-FRONT AND REAR
UD7	PARK ASSIST-REAR
UDC	DISPLAY INSTRUMENT-DRIVER INFO ENHANCED (ONE COLOR GRAPHIC)
UDU	PROVISIONS-REAR CAMERA PREP
UDV	DISPLAY INSTRUMENT-DRIVER INFO ENHANCED, FULL CLUSTER (MULTI COLOR GRAPHIC)
UE1	COMMUNICATION SYSTEM-VEHICLE, ONSTAR
UE4	SENSOR INDICATOR-FOLLOWING DISTANCE
UET	INDICATOR-SMART TRAILER INTEGRATION
UEU	SENSOR INDICATOR-FORWARD COLLISION ALERT

RPO	Description
UF2	LAMP-CARGO
UF3	SWITCH-HIGH IDLE
UFG	REAR CROSS TRAFFIC-ALERT
UFL	LANE ACTIVE SAFETY-DEPARTURE WARNING
UG1	OPENER-GARAGE DOOR, UNIVERSAL
UGA	HOOK-TOW, RED
UH5	INDICATOR-SEAT BELT WARNING, REAR SEAT
UHY	COLL IMMINENT BRK-LOW SPEED, VEH FWD MOVEMENT, BRAKE PREFILL, INTEGRATED BRAKE ASSIST
UIR	INFOTAINMENT DISPLAY-NORMALLY BLACK COLOR (TFT), 7", WVGA 800X480P
UJM	TIRE PRESS INDICATOR-MANUAL LEARN
UJN	TIRE PRESS INDICATOR-AUTO LEARN
UK3	CONTROL-STEERING WHEEL, ACCESSORY
UKC	SIDE ACTIVE SAFETY-OBSTACLE DETECTION ENHANCED
UKJ	PED DETECTION FRT-BASIC, PEDESTRIANS
UKV	SIDE ACTIVE SAFETY-OBSTACLE DETECTION ENHANCED, EXTENDED TRAILER VIEW
ULV	SALES PACKAGE-CHEVROLET BISON
UMN	SPEEDOMETER-INST, MILES & KILO, MILES ODOMETER
UQA	SPEAKER SYSTEM-PREMIUM AUDIO, BRANDED AMPLIFIER
UQF	SPEAKER SYSTEM-STANDARD AUDIO
UQS	SPEAKER SYSTEM-PREMIUM AUDIO, BRANDED SURROUND AMPLIFIER
URC	SWITCH-FLEXRIDE MODE SYSTEM
URD	INFOTAINMENT DISPLAY-NORMALLY BLACK COLOR (TFT) ,13.4", 2400X960
UTJ	THEFT DETERENT-ELECTRICAL, UNAUTHORIZED ENTRY
UV2	VISION-360 VIEW, MONO, HD DIGITAL
UV6	HEAD UP DISPLAY-WINDSHIELD
UVB	VISION-REAR VIEW, MONO, HD DIGITAL
UVN	VISION AUXILIARY-CARGO BED
UVO	VISION AUXILIARY-CARGO BED BASE
UY2	WIRING PROVISIONS-CAMPER & 5TH WHEEL TRAILER
V46	BUMPER FRT-CHROME
V76	HOOK-TOW
V8D	VEHICLE STATEMENT-VEHICLE LABEL CONTENT - U.S. FMVSS
VAV	ACCESSORY-FLOOR MATS - ALL WEATHER
VB5	BUMPER FRT-COLOR
VBJ	ACCESSORY-UNDERSEAT STORAGE

RPO	Description
VBR	ACCESSORY-PUBX RUBBER MAT
VDA	ACCESSORY-CAMPER & 5TH WHEEL TRAILER CONNECTION
VGC	PROTECTOR-FILM, PAINT ETCH PREVENTIVE
VHU	BUMPER FRT-SPORT
VJH	BUMPER RR-CHROME
VK3	LICENSE PLATE FRONT-FRT MOUNTING PKG
VKU	ACCESSORY-MIRROR CAPS - CHROME
VKY	ACCESSORY-DOOR HANDLES - ALTERNATE FINISH - CHROME
VLQ	HOOK-TOW, CHROME
VMK	ACCESSORY-CARGO MANAGEMENT SYSTEM RAILS
VOZ	ACCESSORY-TONNEAU - RR COMPT - HARD FOLDING - ALT DESIGN
VPB	ACCESSORY-TONNEAU - RR COMPT - VINYL W/ INTEGRAL CROSSBOW SUPPORTS
VQK	ACCESSORY-SPLASH GUARDS - CUSTOM MOLDED
VQO	ACCESSORY-ASSIST STEPS - BLACK
VQY	ACCESSORY-TOW HOOKS - CHROME
VQZ	ACCESSORY-EXHAUST TIP - DESIGN 1
VST	ACCESSORY-SILL PLATES - ALTERNATE DESIGN 1
VSX	LABEL-TOWING
VT5	BUMPER RR-COLOR KEYED
VT7	OWNERS MANUAL-ENGLISH LANGUAGE
VTA	ACCESSORY-EXHAUST TIP - DESIGN 2
VTI	SHUTTERS-FRONT GRILLE, ACTIVE, UPR
VTP	ACCESSORY-ASSIST STEPS - COMMERCIAL
VUK	ACCESSORY-TAILGATE LINER - PUBX
VV4	COMMUNICATION EQUIP-MOBILE INTERNET CONNECTIVITY
VW9	ACCESSORY-CENTER CAP - WHEEL - DESIGN 3
VXH	ACCESSORY-ASSIST STEPS - TUBULAR - CHROME - OVAL
VXJ	ACCESSORY-ASSIST STEPS - TUBULAR - CHROME - ROUND
VXT	VEHICLE TYPE-INCOMPLETE
VXW	ACCESSORY-ASSIST STEPS - MOLDED
VYU	PROVISIONS-SNOW PLOW PREP
VZX	ACCESSORY-PUBX BEDLINER
W0F	ACCESSORY-GRILLE COVER - WINTER PROTECTION
W2D	ACCESSORY-CARGO NET
WBC	ACCESSORY-EXHAUST UPGRADE
WLD	WINDOW CONTROL-REMOTE EXPRESS DOWN, ALL WINDOWS

RPO	Description
WMY	VIN MODEL YEAR-2024
WPC	SALES PACKAGE-COMFORT AND CONVENIENCE
X31	APPEARANCE PACKAGE-GMC "X31 OFF ROAD"
XGC	ACCESSORY TIRE-TIRE ALL-LT265/60R22 E 123/120S BW AT
XGD	TIRE ALL-LT265/60R22 E 123/120S BW AT VAR 1
YF5	CERTIFICATION-EMISSION, CALIFORNIA
Z6A	PROVISIONS-SPECIAL EQUIPMENT, 5TH WHEEL/ GOOSENECK TRAILER HITCH PREP PACKAGE
Z71	CHASSIS PACKAGE-"OFF ROAD"
Z82	TRAILER PROVISIONS-SPECIAL EQUIPMENT, H.D.
Z85	CHASSIS PACKAGE-INCREASED CAPACITY
Z88	MARKET BRAND-GMC
ZAE	TIRE SPARE-LT235/80R18 E 121/118R BW AT
ZHQ	TIRE SPARE-LT245/75R17 E 121/118 R BW ALS
ZL3	SALES PACKAGE-CONVENIENCE
ZLQ	SALES PACKAGE-LS FLEET
ZM9	SALES PACKAGE-COMFORT & CONVENIENCE
ZW9	BODY EQUIPMENT-BASE BODY OR CHASSIS
ZXT	TIRE SPARE-LT265/70R17/E BW TL
ZYG	TIRE SPARE-LT275/70R18 E 125/122 S BW AT VAR 1
ZZT	TIRE SPARE-LT235/80R17 E 120/117 R BW AT

BLANK

Section 2

Body Systems

Fixed and Moveable Windows 2-3
Schematic and Routing Diagrams 2-3
Moveable Window Schematics 2-4
Defogger Schematics 2-10
Description and Operation 2-11
Power Windows Description and Operation 2-11
Rear Window Defogger Description and Operation 2-11

Horns and Pedestrian Alerts 2-12
Schematic and Routing Diagrams 2-12
Horn Schematics 2-13
Description and Operation 2-14
Horns System Description and Operation 2-14

Lighting 2-15
Schematic and Routing Diagrams 2-15
Headlights/Daytime Running Lights (DRL) Schematics 2-16
Fog Lights Schematics 2-19
Exterior Lights Schematics 2-20
Interior Lights Schematics 2-35
Interior Lights Dimming Schematics 2-37
Description and Operation 2-41
Exterior Lighting Systems Description and Operation 2-41
Interior Lighting Systems Description and Operation 2-44

Mirrors 2-45
Schematic and Routing Diagrams 2-45
Inside Rearview Mirror Schematics 2-46
Outside Rearview Mirror Schematics 2-47
Description and Operation 2-50
Automatic Day-Night Mirror Description and Operation 2-50
Outside Mirror Description and Operation 2-51

Trailering Systems 2-53
Schematic and Routing Diagrams 2-53
Trailering Systems Schematics 2-54
Description and Operation 2-61
Trailering Description and Operation 2-61

Vehicle Access 2-67
Schematic and Routing Diagrams 2-67
Door Lock/Indicator Schematics 2-68
Release Systems Schematics 2-74
Endgate Schematics 2-75
Hood Latch Schematics 2-79
Description and Operation 2-80
Door Ajar Indicator Description and Operation 2-80
Endgate Description and Operation (QT6) 2-80
Endgate Description and Operation (QT5 Without MultiPro Tailgate) 2-81
Endgate Description and Operation (QT5 With MultiPro Tailgate) 2-82
Hood Ajar Indicator Description and Operation 2-82
Power Door Locks Description and Operation 2-83

Wipers and Washers 2-84
Schematic and Routing Diagrams 2-84
Wiper/Washer Schematics 2-85
Description and Operation 2-87
Wiper/Washer System Description and Operation 2-87

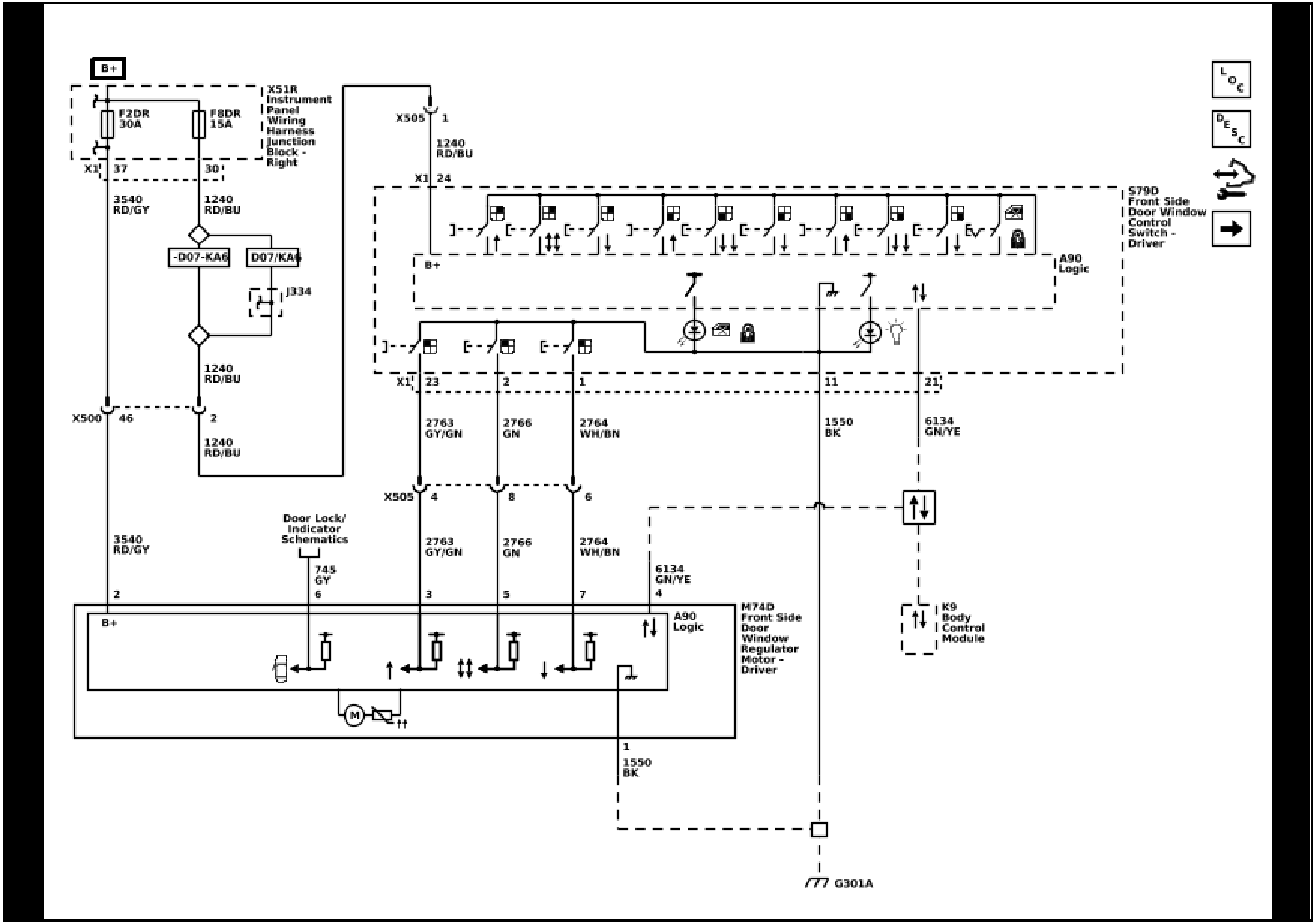
BLANK

Body Systems

Fixed and Moveable Windows

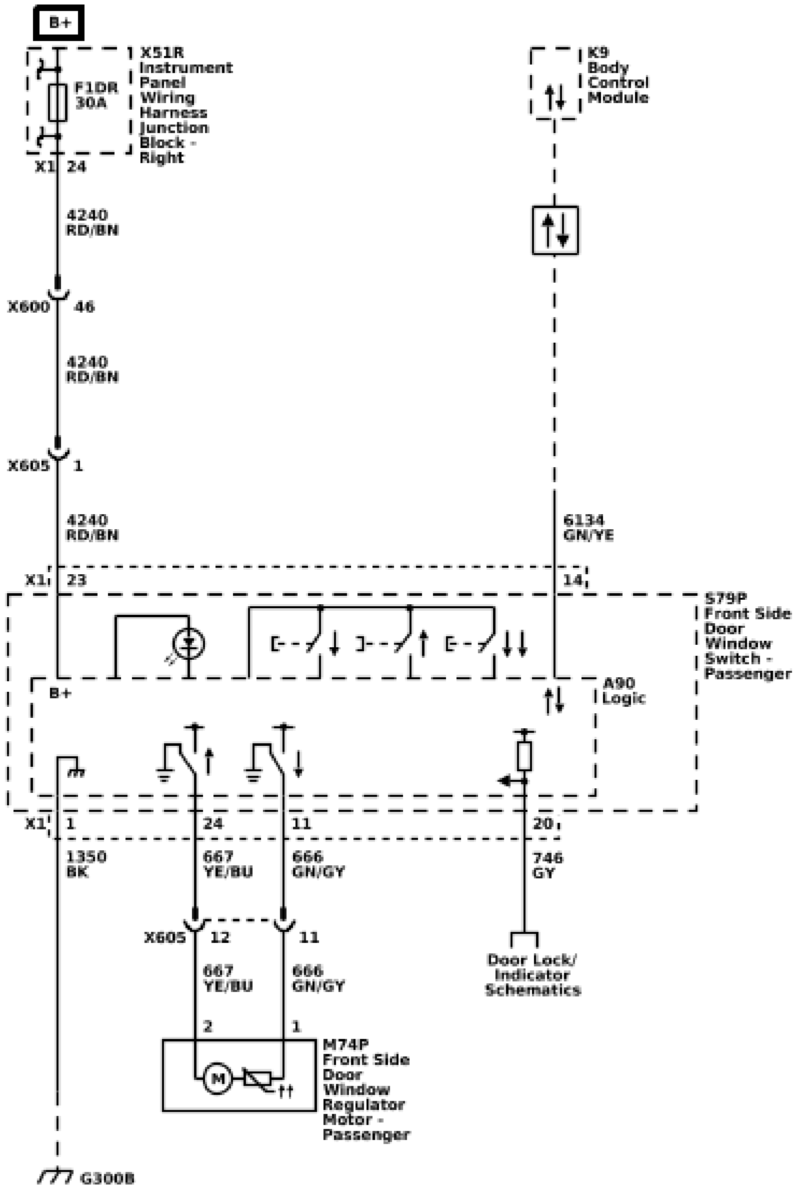
Schematic and Routing Diagrams

Moveable Window Schematics Object-ID=6152301 (Driver Window (AXG))


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F2DR 30A
F8DR 15A
X1 37
30
3540 RD/GY
1240 RD/BU
-D07-KA6
D07/KA6
J334
1240 RD/BU
X500 46
2
1240 RD/BU
3540 RD/GY
Door Lock/ Indicator Schematics
745 GY
6
2
B+
X505 1
1240 RD/BU
X1 24
B+
A90 Logic
S79D Front Side Door Window Control Switch - Driver
X1 23
2
1
11
21
2763 GY/GN
2766 GN
2764 WH/BN
1550 BK
6134 GN/YE
X505 4
8
6
2763 GY/GN
2766 GN
2764 WH/BN
6134 GN/YE
3
5
7
4
A90 Logic
M74D Front Side Door Window Regulator Motor - Driver
M
K9 Body Control Module
1
1550 BK
G301A

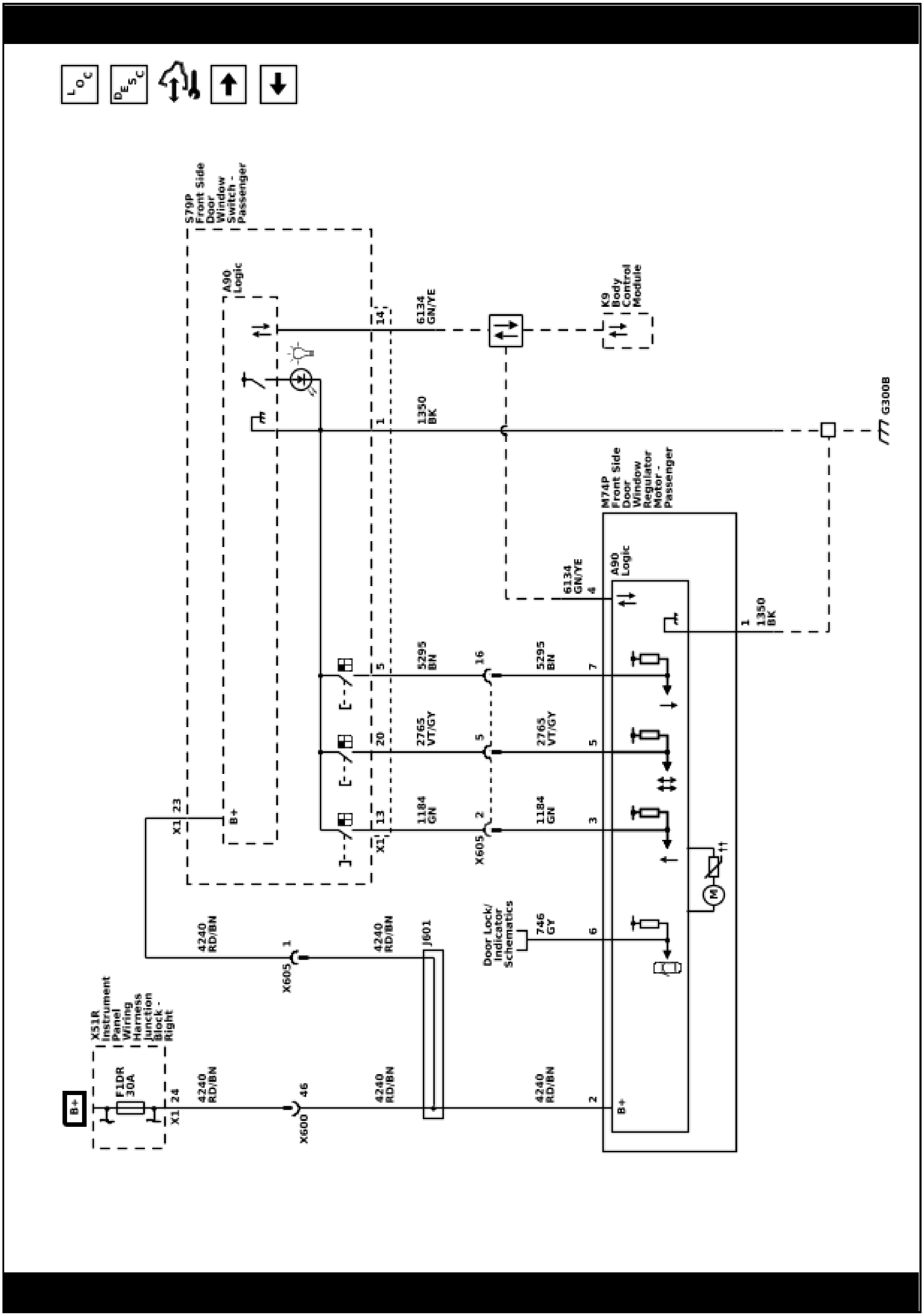
6150403

Moveable Window Schematics Object-ID=6152301 (Passenger Window (AED))


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F1DR 30A
X1 24
4240 RD/BN
X600 46
4240 RD/BN
X605 1
4240 RD/BN
X1 23
K9 Body Control Module
6134 GN/YE
14
S79P Front Side Door Window Switch - Passenger
A90 Logic
B+
X1 1
24
11
20
1350 BK
667 YE/BU
666 GN/GY
746 GY
X605 12
11
667 YE/BU
666 GN/GY
Door Lock/ Indicator Schematics
2
1
M
M74P Front Side Door Window Regulator Motor - Passenger
G300B

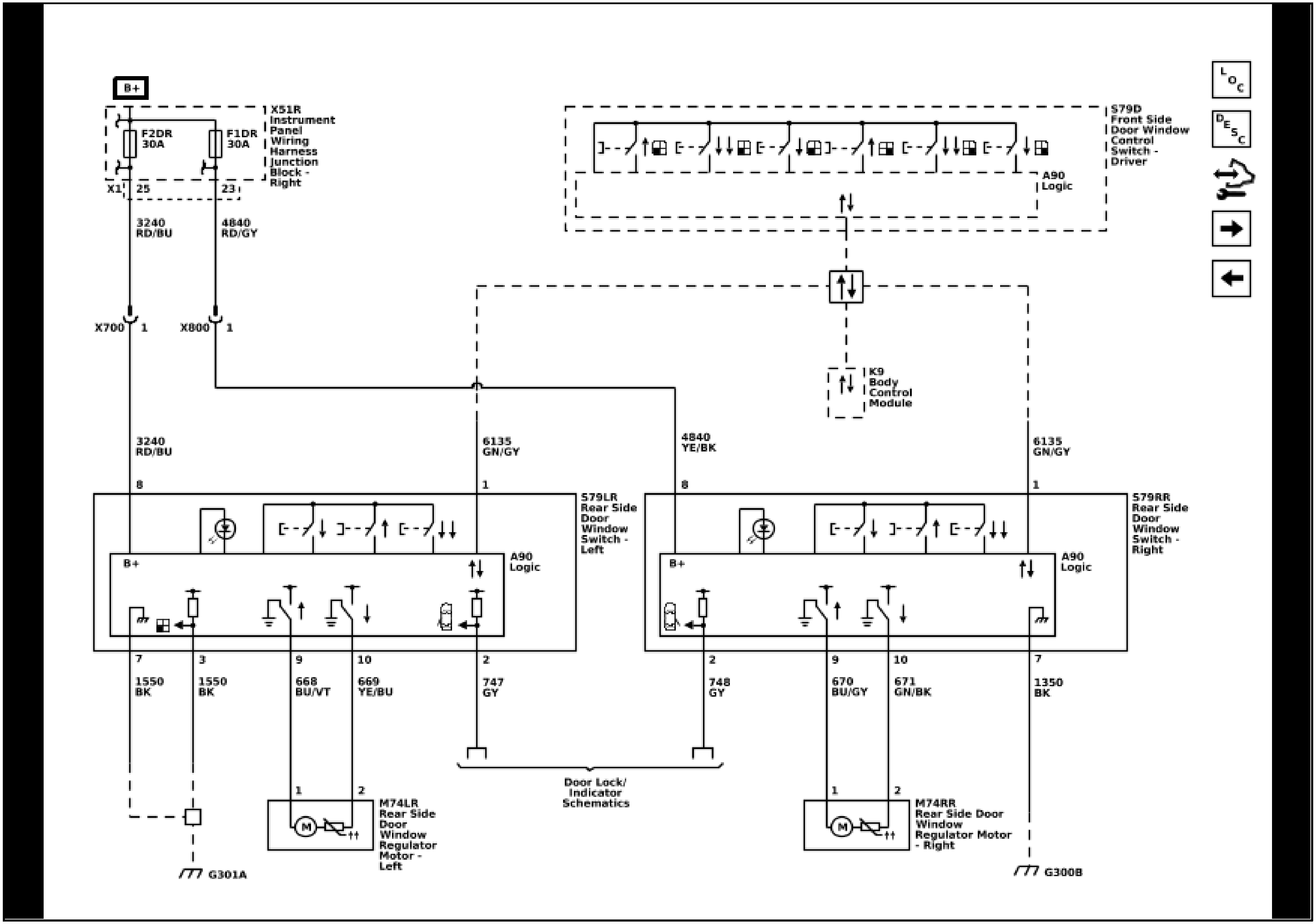
6150404

Moveable Window Schematics Object-ID=6152301 (Passenger Window (AEF))


L O C
D E S C
S79P Front Side Door Window Switch - Passenger
A90 Logic
K9 Body Control Module
6134 GN/YE
14
1
1350 BK
G300B
M74P Front Side Door Window Regulator Motor - Passenger
A90 Logic
4
6134 GN/YE
1
1350 BK
X1 23
B+
X1
13
20
5
1184 GN
2765 VT/GY
5295 BN
X605
2
5
16
1184 GN
2765 VT/GY
5295 BN
3
5
7
M
4240 RD/BN
X605 1
4240 RD/BN
J601
Door Lock/ Indicator Schematics
746 GY
6
X51R Instrument Panel Wiring Harness Junction Block - Right
B+
F1DR 30A
X1 24
4240 RD/BN
X600 46
4240 RD/BN
4240 RD/BN
2
B+

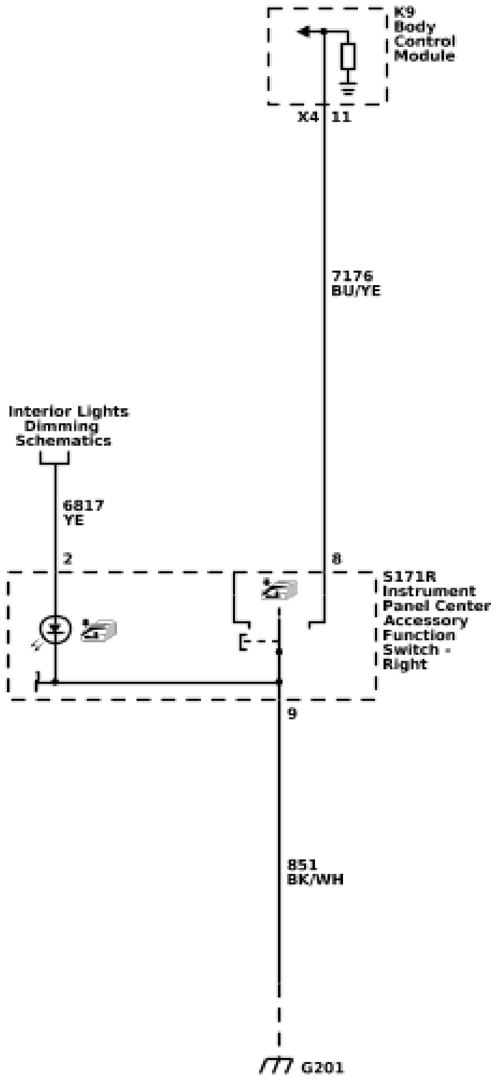
6150405

Moveable Window Schematics Object-ID=6152301 (Rear Windows (AEQ))


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F2DR 30A
F1DR 30A
X1
25
23
3240 RD/BU
4840 RD/GY
X700 1
X800 1
S79D Front Side Door Window Control Switch - Driver
A90 Logic
K9 Body Control Module
3240 RD/BU
6135 GN/GY
4840 YE/BK
6135 GN/GY
8
1
8
1
S79LR Rear Side Door Window Switch - Left
A90 Logic
B+
S79RR Rear Side Door Window Switch - Right
A90 Logic
B+
7
3
9
10
2
1550 BK
1550 BK
668 BU/VT
669 YE/BU
747 GY
2
9
10
7
748 GY
670 BU/GY
671 GN/BK
1350 BK
Door Lock/ Indicator Schematics
1
2
M74LR Rear Side Door Window Regulator Motor - Left
M
1
2
M74RR Rear Side Door Window Regulator Motor - Right
M
G301A
G300B
LOC
DESC

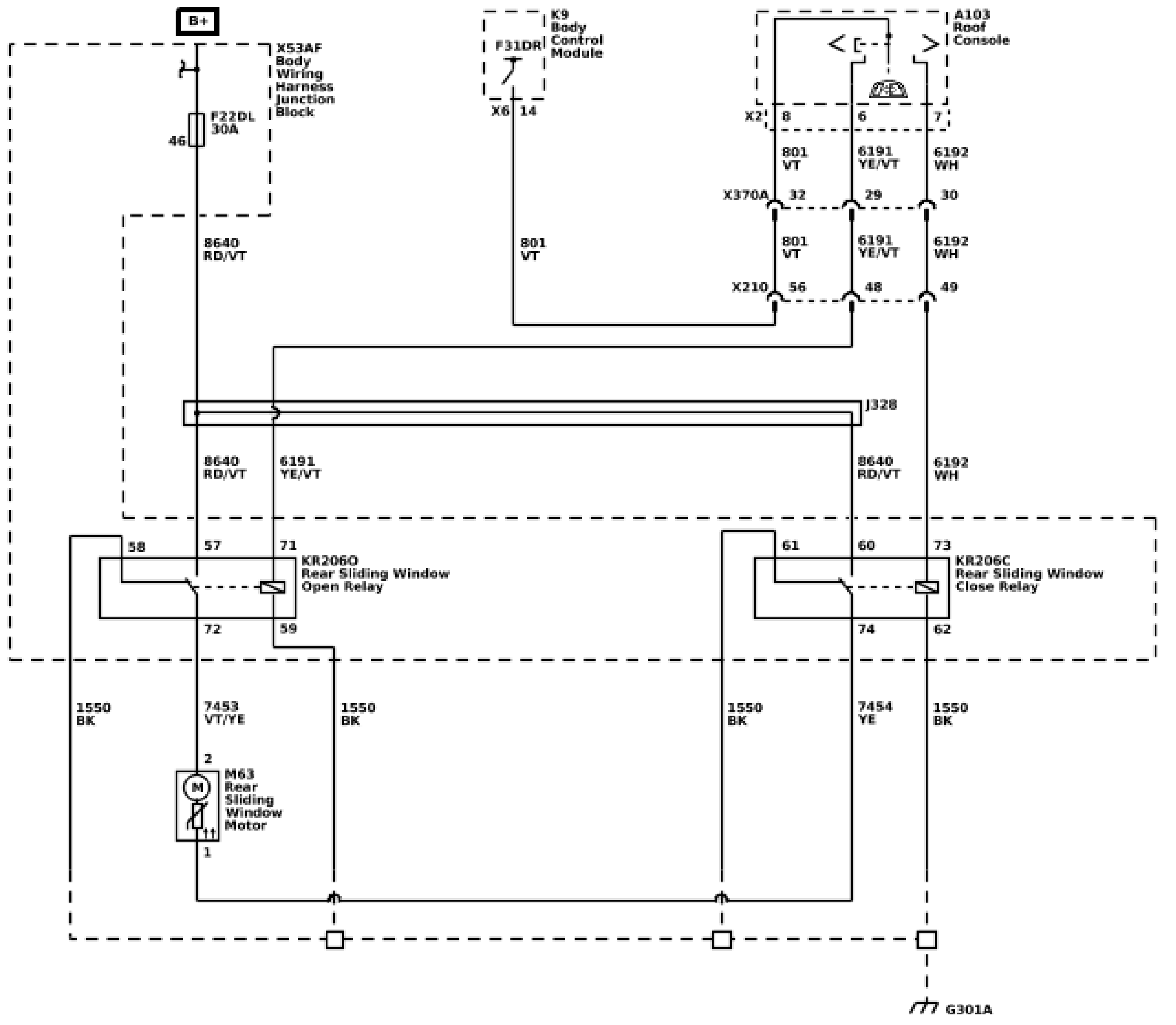
6150406

Moveable Window Schematics Object-ID=6152301 (Global Window Express Down Switch - In Right IP Accessory Function Switch (WLD))


K9
Body
Control
Module
X4 11
7176
BU/YE
Interior Lights
Dimming
Schematics
6817
YE
2
8
S171R
Instrument
Panel Center
Accessory
Function
Switch -
Right
9
851
BK/WH
G201

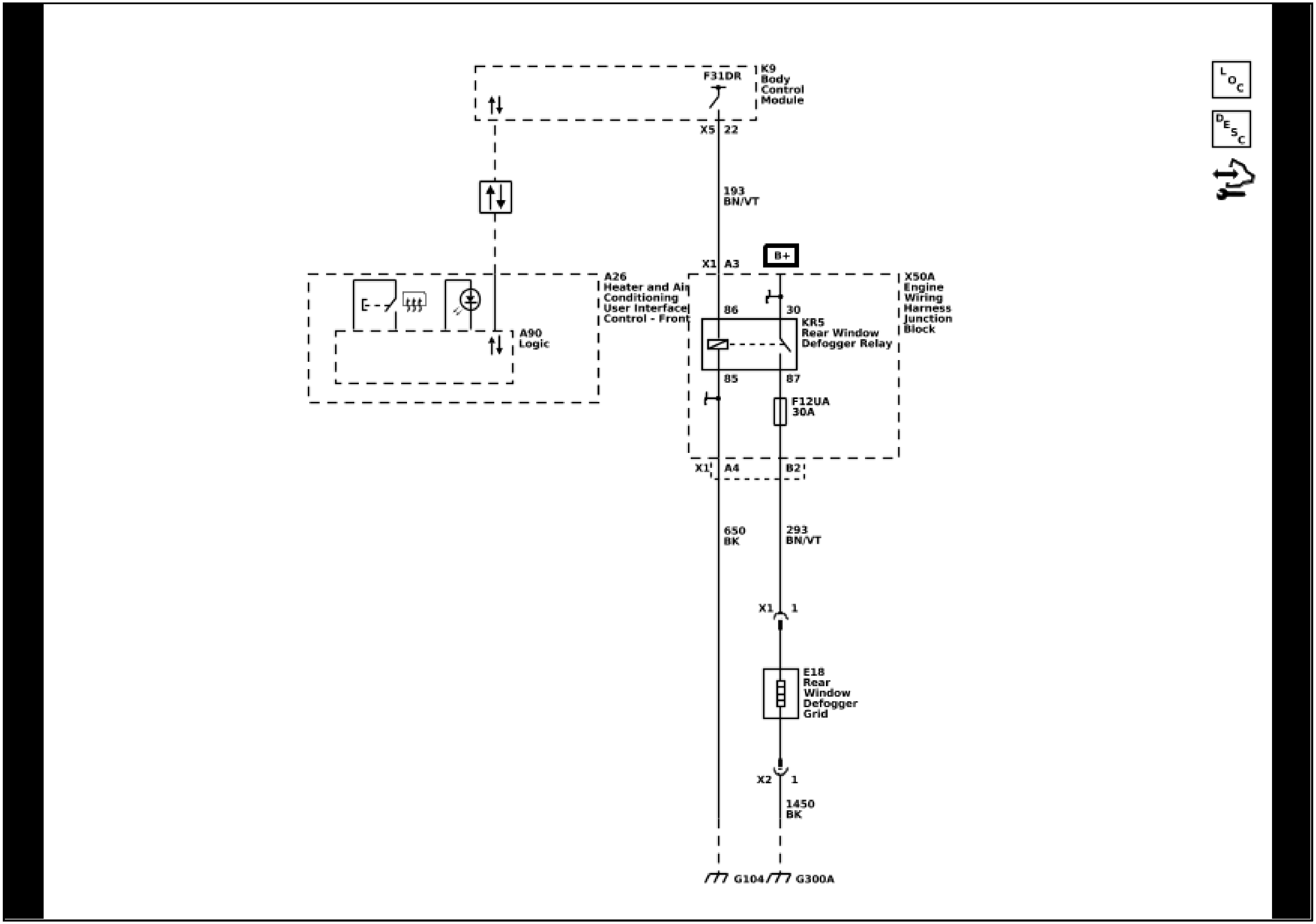
6150407

Moveable Window Schematics Object-ID=6152301 (Rear Sliding Window (A48))


B+
X53AF
Body
Wiring
Harness
Junction
Block
F22DL
30A
46
8640
RD/VT
K9
Body
Control
Module
F31DR
X6 14
801
VT
A103
Roof
Console
X2
8
6
7
801
VT
6191
YE/VT
6192
WH
X370A
32
29
30
X210
56
48
49
J328
58
57
71
72
59
KR206O
Rear Sliding Window
Open Relay
61
60
73
74
62
KR206C
Rear Sliding Window
Close Relay
1550
BK
7453
VT/YE
7454
YE
2
M
M63
Rear
Sliding
Window
Motor
1
G301A

6150409

Defogger Schematics Object-ID=6152303 (Defogger)


L O C
D E S C
K9
Body
Control
Module
F31DR
X5 22
193
BN/VT
X1 A3
B+
X50A
Engine
Wiring
Harness
Junction
Block
30
86
KR5
Rear Window
Defogger Relay
85
87
F12UA
30A
X1 A4
B2
650
BK
293
BN/VT
X1 1
E18
Rear
Window
Defogger
Grid
X2 1
1450
BK
G104
G300A
A26
Heater and Air
Conditioning
User Interface
Control - Front
A90
Logic

6150410

Description and Operation

Power Windows Description and Operation

Object-ID=5396028 Owner=Prottenger, Stevie LMD=06-Aug-2021 LMB=Blanzy, Ken

Power Windows System Components

The power window system consists of the following components:

- Driver front side door window control switch
- Passenger front side door window control switch
- Left rear side door window switch
- Right rear side door window switch
- Window motors in each of the doors
- Body control module (BCM)

Driver and Passenger Express Up and Express Down Power Window Motors

The driver and passenger doors contains a window motor is smart motor that will detect excessive resistance while performing the express up function and automatically reverse direction to prevent injury to any occupants that may become trapped between the closing window and the door frame. The automatic reverse safety feature can be overridden by pulling and holding the window switch.

The logic circuit within the window motor monitors the up, down and express signal circuits which are normally equal to B+ voltage. When a switch is used on the front side door window control switch, the contacts close causing a voltage drop within the appropriate signal circuit. The window motor will detect the voltage drop and will command the window to move in the direction requested.

The driver front side door window control switch communicates to the BCM by a serial data circuit. When the driver wishes to control the passenger window, the driver will use the appropriate switch on the driver front side door window control switch. When this switch is used, a serial data message is sent to the BCM requesting the passenger window motor command, the BCM will then send a serial data message to the passenger window motor which will then move in the direction requested.

Left Rear, Right Rear Express Down Window Motors

For the right rear and left rear doors, when their window switch is pressed in the down position, battery positive voltage is applied to their respective window motor control circuit and ground to the other window motor control circuit causing that window to open. When the individual window switch is pulled in the up position, voltage and ground is applied to the window motor in the opposite direction causing that window to close. The return path to ground is supplied through the inactive control circuit being normally grounded through the window switch.

Each rear side door window switch communicates to the BCM by a serial data circuit. When the driver wishes to control the left rear or right rear window, the driver will use the appropriate switch on the driver front side door window control switch. When this switch is used, a serial data message is sent to the BCM requesting a window motor command, the BCM will then send a serial data message to the appropriate rear side door window switch which will then command that window to move in the direction requested.

Lockout Switch Feature

The driver front side door window control switch contains a window lockout switch, when the driver presses the window lockout switch, a serial data message is sent to the BCM which will send a disable command to the rear side door window switches, deactivating them. The rear windows will still function normally from the switches on the driver front side door window control switch.

Rear Window Defogger Description and Operation

Object-ID=5475534 Owner=Prottenger, Stevie LMD=06-Aug-2021 LMB=Blanzy, Ken

Rear Window Defogger System Components

The rear window defogger system consists of the following components:

- Body Control Module
- Front Heater and Air Conditioning User Interface Control
- Rear Body Wiring Harness Junction Block (Contains PCB Rear Defogger Relay
- Rear Defogger Grid
- 40A Fuse

Rear Window Defogger Operation

The rear defog control system utilizes a single zone backlight design, driven with a single relay configuration. A switch for the customer to control the system is provided within the front heater and air conditioning user interface control. Also included in the front heater and air conditioning user interface control is an indicator to inform the customer with the current state of the system. The system is only operational when engine is running or during remote start.

Pressing the heated rear window switch causes the front heater and air conditioning user interface control to send a serial data message to the body control module requesting rear window defog operation. The body control module upon receipt of the serial data message will provide voltage to the coil side of the rear defogger relay, this will energize the relay causing the relay switch contacts to close allowing B+ voltage to flow through the rear defogger grid control circuit to the rear defogger grid.

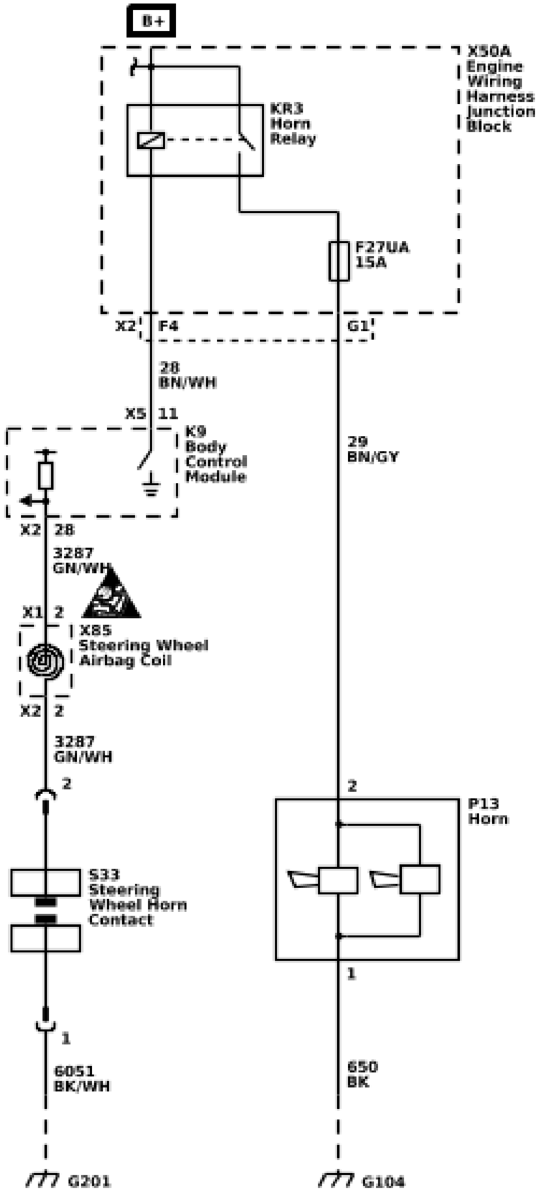
When the rear heated rear window switch is pressed and the engine is running, the rear window defogger grid will activate and will turn off automatically depending upon the vehicle speed (refer to owner's manual for rear window defogger operation cycles)

Body Systems

Horns and Pedestrian Alerts

Schematic and Routing Diagrams

Horn Schematics Object-ID=6152305 (Horn)


B+
X50A
Engine
Wiring
Harness
Junction
Block
KR3
Horn
Relay
F27UA
15A
X2
F4
G1
28
BN/WH
X5
11
K9
Body
Control
Module
29
BN/GY
X2
28
3287
GN/WH
X1
2
X85
Steering Wheel
Airbag Coil
X2
2
3287
GN/WH
2
P13
Horn
2
S33
Steering
Wheel Horn
Contact
1
1
6051
BK/WH
650
BK
G201
G104

6150411

Description and Operation

Horns System Description and Operation

Object-ID=5585471 Owner=Prottenger, Stevie LMD=13-Mar-2023 LMB=Prottenger, Stevie

System Description

The horn system consists of the following components:

- HORN fuse
- Engine wiring harness junction block (contains horn PCB relay
- Steering wheel horn contact
- Horn
- Body control module (BCM)

System Operation

The vehicle horn system is activated under the following conditions:

- When the horn switch is depressed
- The BCM commands the horns ON under any of the following conditions:
  - When the content theft deterrent system detects a vehicle intrusion.
  - When the panic button is depressed on the remote control door lock transmitter—For further information refer to *Keyless Entry System Description and Operation on page 8-337*.
  - When the keyless entry system is used to lock the vehicle, a horn chirp may sound to notify the driver that the vehicle has been locked. The notification feature may be enabled or disabled through personalization. For further information refer to *Keyless Entry System Description and Operation on page 8-337*.
  - When the OnStar® system is used to sound the horns if equipped—For further information, refer to OnStar Description and Operation.

Circuit Operation

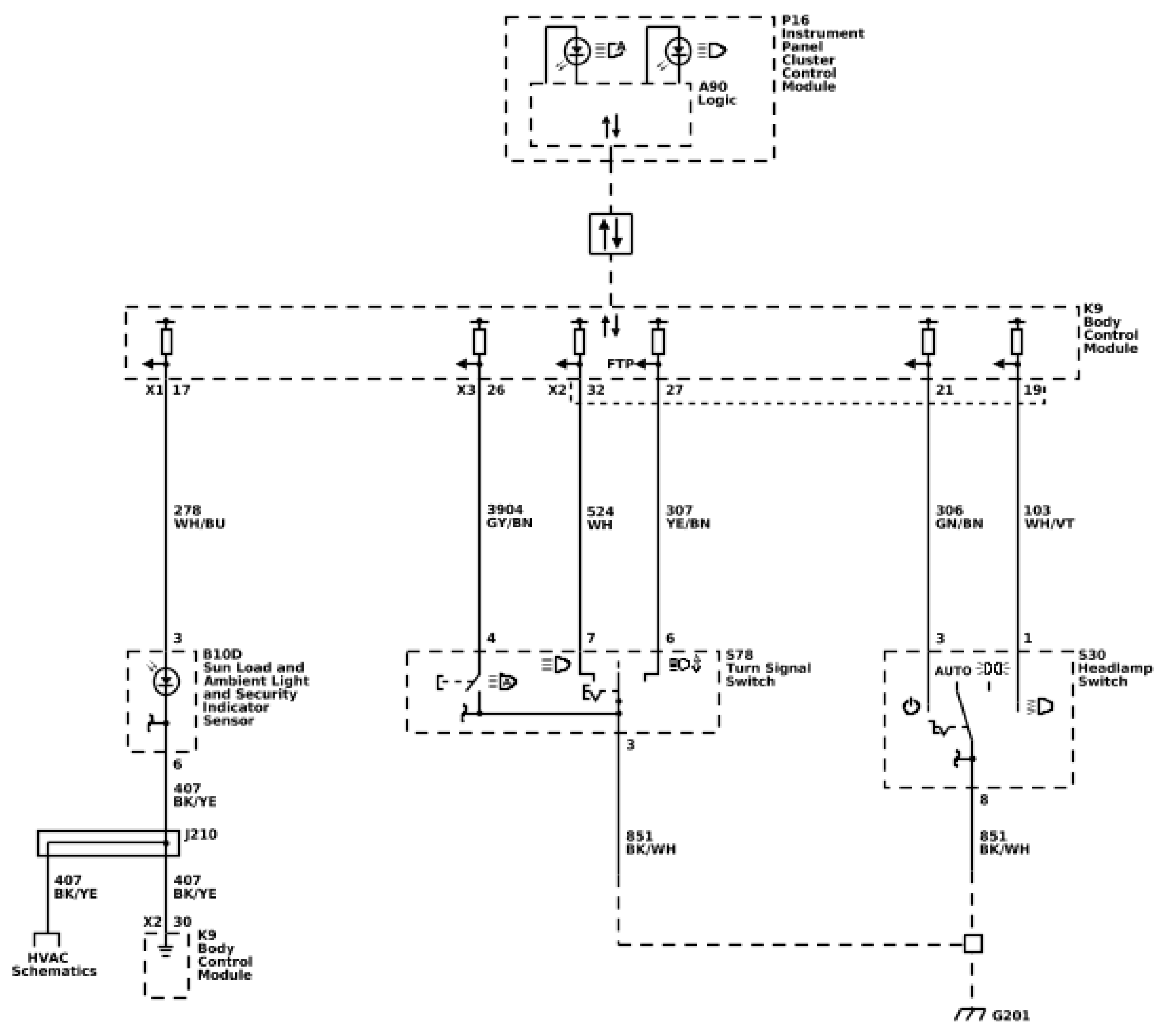
Battery positive voltage is applied at all times to the horn relay coil and the horn relay switch. Pressing either of the horn switches applies ground to the horn relay control circuit. The BCM may also apply ground to the horn relay control circuit as described above. When the horn relay control circuit is grounded, the horn relay is energized and battery positive voltage is applied to the horns through the horn control circuit. The horns sound as long as ground is applied to the horn relay control circuit.

Body Systems

Lighting

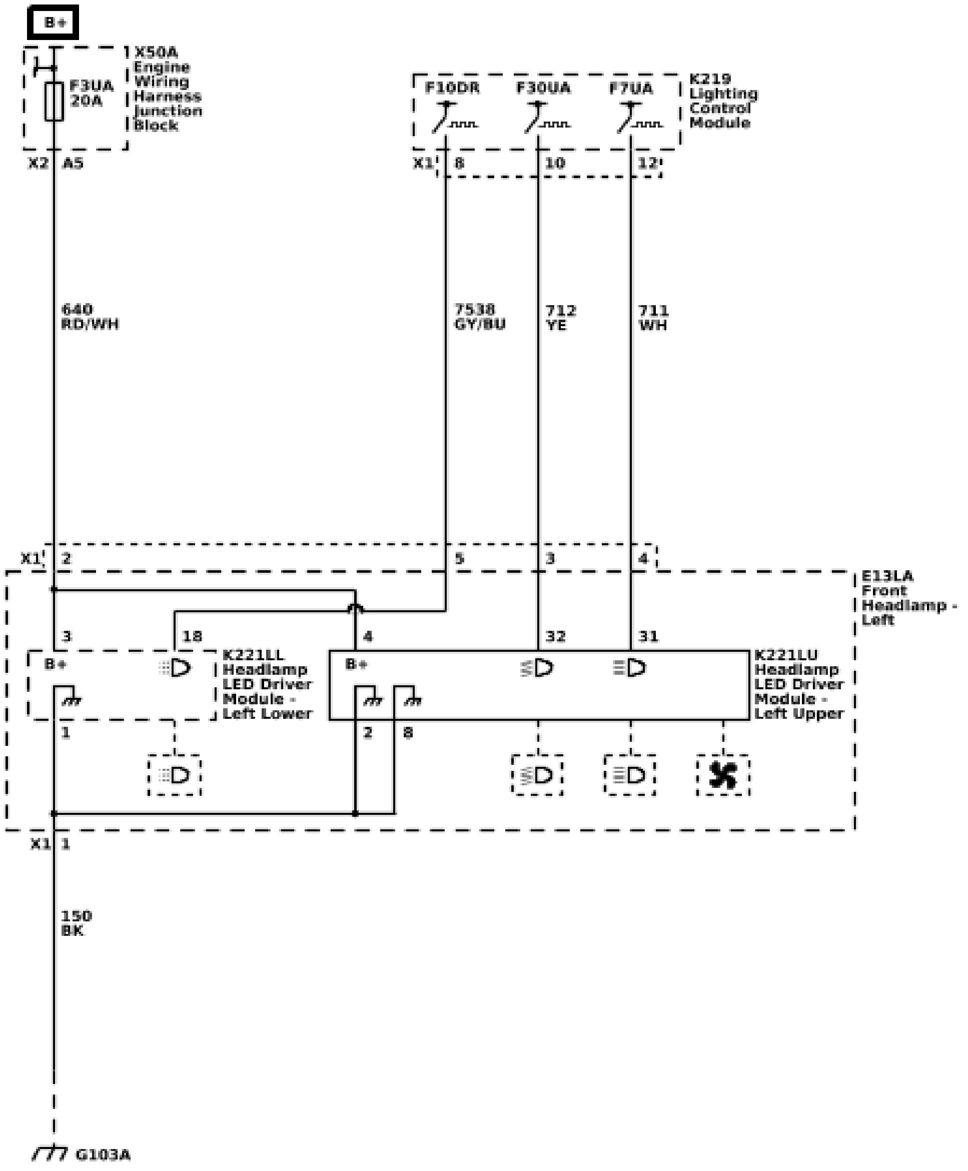
Schematic and Routing Diagrams

Headlights/Daytime Running Lights (DRL) Schematics Object-ID=6152307 (Controls and Indicators)


P16
Instrument
Panel
Cluster
Control
Module
A90
Logic
K9
Body
Control
Module
FTP
X1 17
X3 26
X2 32
27
21
19
278
WH/BU
3904
GY/BN
524
WH
307
YE/BN
306
GN/BN
103
WH/VT
3
B10D
Sun Load and
Ambient Light
and Security
Indicator
Sensor
6
407
BK/YE
J210
407
BK/YE
407
BK/YE
X2 30
K9
Body
Control
Module
HVAC
Schematics
4
7
6
S78
Turn Signal
Switch
3
851
BK/WH
3
1
AUTO
S30
Headlamp
Switch
8
851
BK/WH
G201

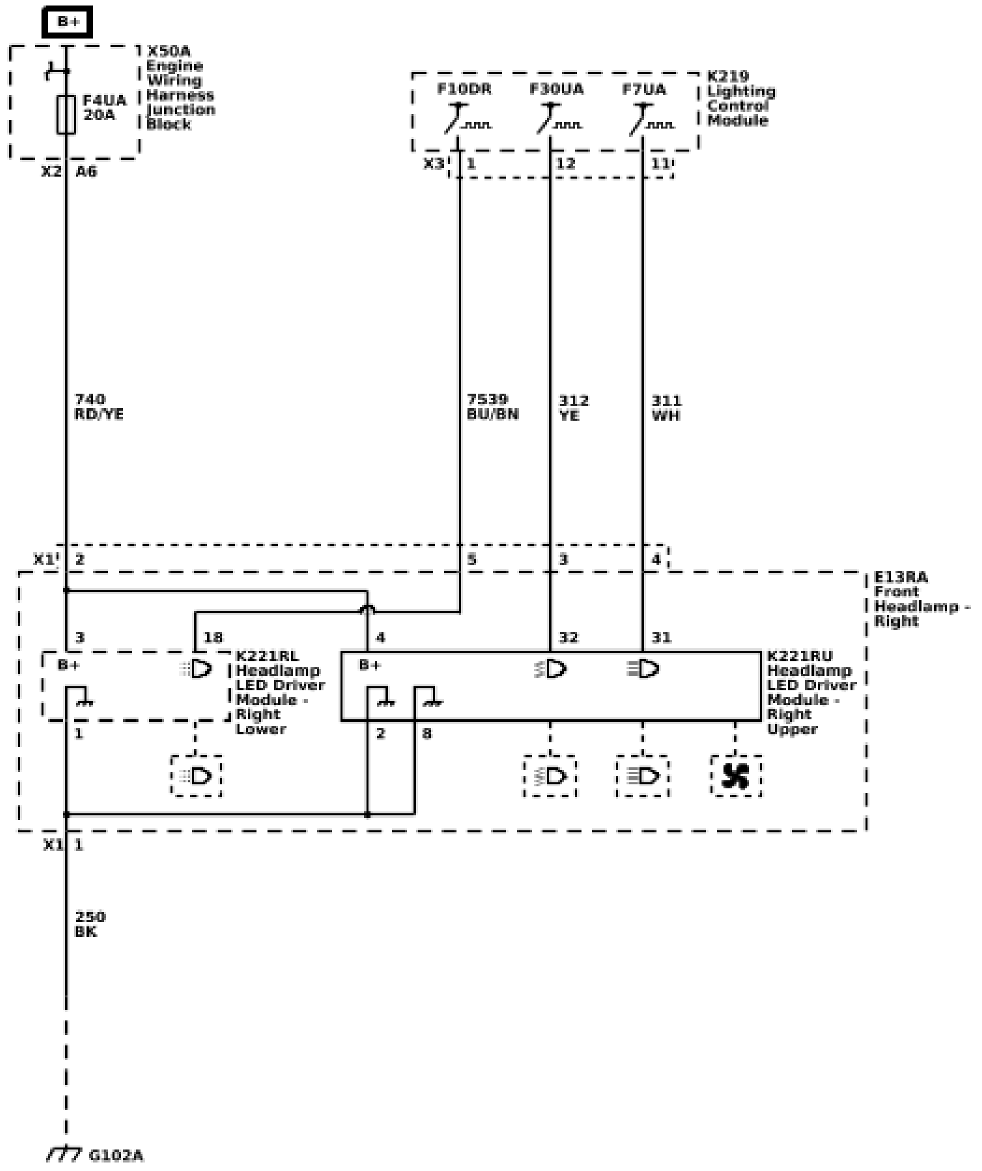
6150412

Headlights/Daytime Running Lights (DRL) Schematics Object-ID=6152307 (Headlamps and Daytime Running Lamps - Left)


B+
X50A Engine Wiring Harness Junction Block
F3UA 20A
X2 A5
640 RD/WH
F10DR
F30UA
F7UA
K219 Lighting Control Module
X1 8
10
12
7538 GY/BU
712 YE
711 WH
X1 2
5
3
4
E13LA Front Headlamp - Left
3
18
4
32
31
B+
K221LL Headlamp LED Driver Module - Left Lower
B+
K221LU Headlamp LED Driver Module - Left Upper
1
2
8
X1 1
150 BK
G103A

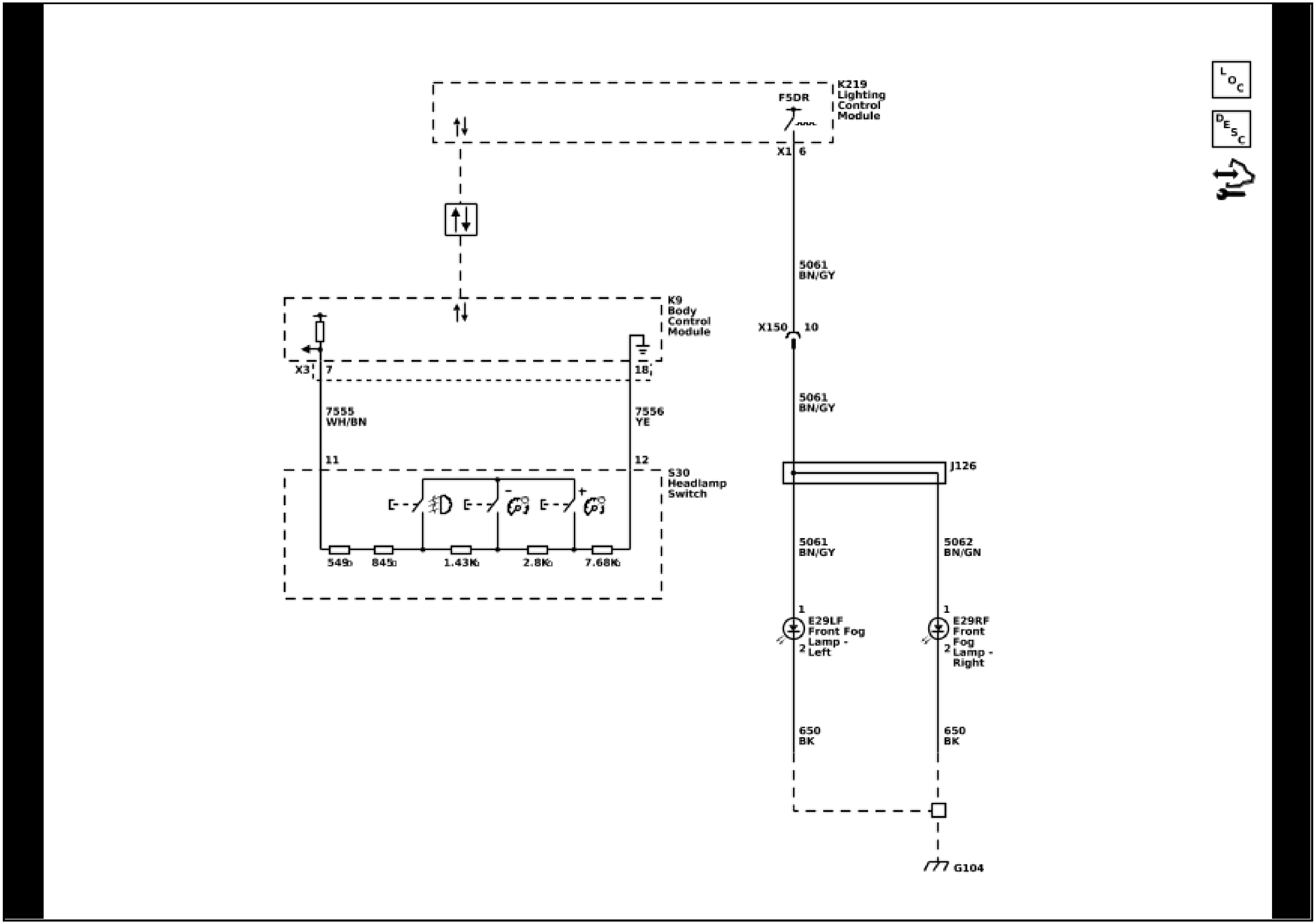
6150413

Headlights/Daytime Running Lights (DRL) Schematics Object-ID=6152307 (Headlamps and Daytime Running Lamps - Right)


B+
X50A Engine Wiring Harness Junction Block
F4UA 20A
X2 A6
740 RD/YE
K219 Lighting Control Module
F10DR
F30UA
F7UA
X3 1
12
11
7539 BU/BN
312 YE
311 WH
X1 2
5
3
4
E13RA Front Headlamp - Right
3
18
4
32
31
B+
B+
K221RL Headlamp LED Driver Module - Right Lower
K221RU Headlamp LED Driver Module - Right Upper
1
2
8
X1 1
250 BK
G102A

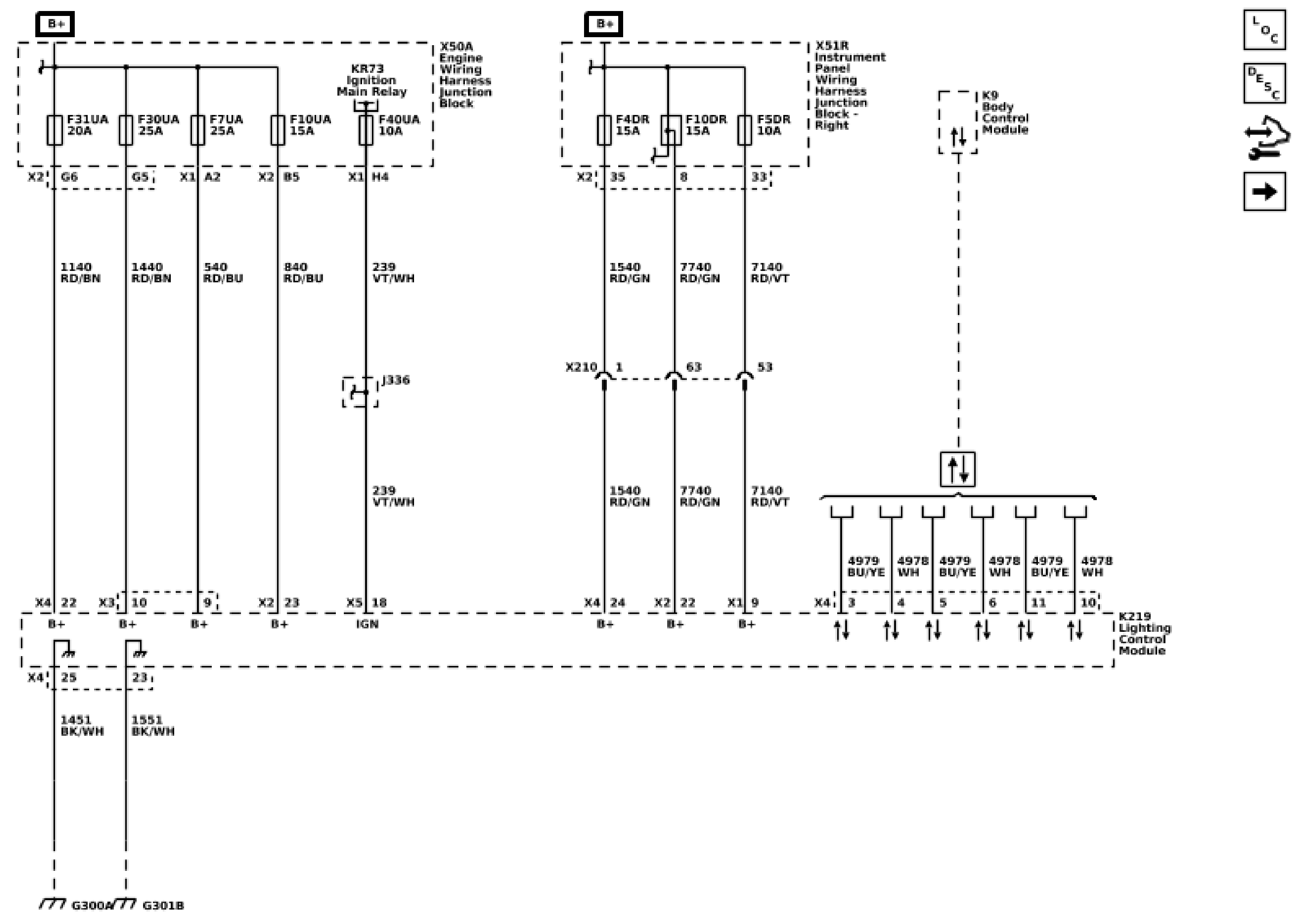
6150414

Fog Lights Schematics Object-ID=6152309 (Fog Lamps (T3U))


K219 Lighting Control Module
F5DR
X1 6
5061 BN/GY
X150 10
5061 BN/GY
J126
5061 BN/GY
5062 BN/GN
1
E29LF Front Fog Lamp - Left
2
1
E29RF Front Fog Lamp - Right
2
650 BK
650 BK
G104
K9 Body Control Module
X3 7
18
7555 WH/BN
7556 YE
11
12
S30 Headlamp Switch
549Ω
845Ω
1.43KΩ
2.8KΩ
7.68KΩ
-
+

6150417

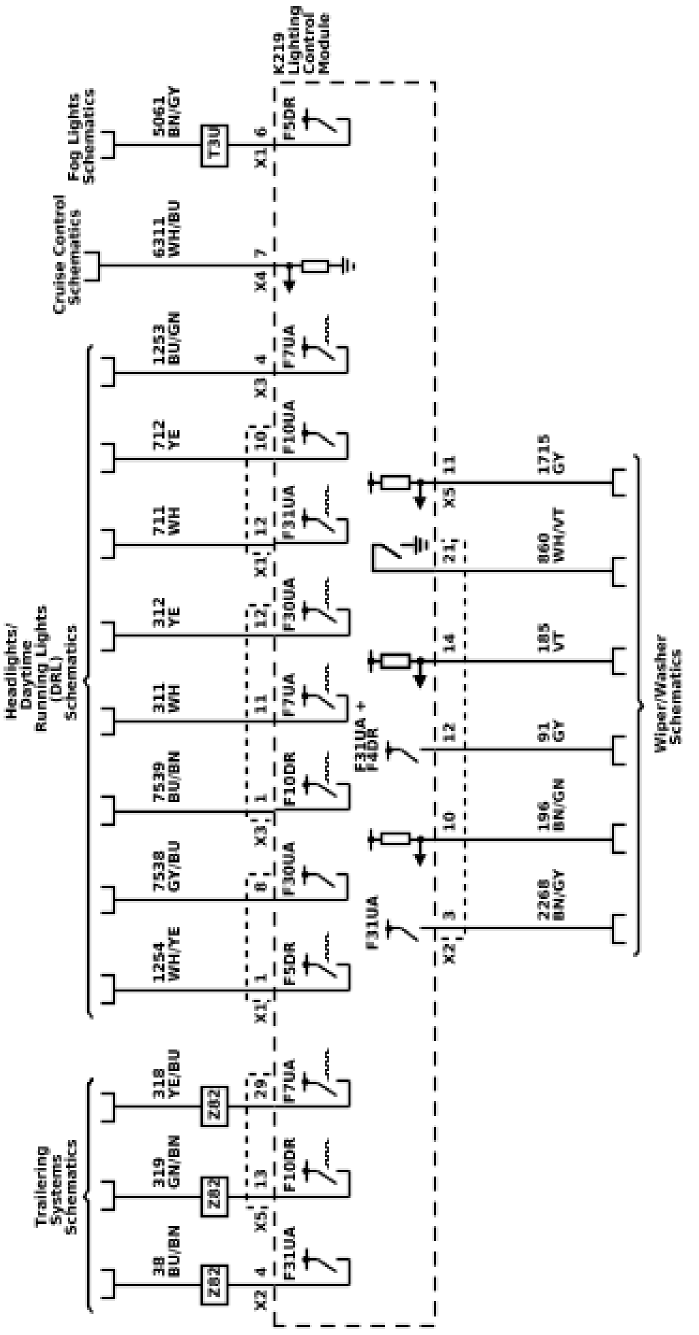
Exterior Lights Schematics Object-ID=6152310 (Lighting Control Module Power, Ground, and Serial Data)


B+
X50A Engine Wiring Harness Junction Block
F31UA 20A
F30UA 25A
F7UA 25A
F10UA 15A
KR73 Ignition Main Relay
F40UA 10A
X2 G6
G5
X1 A2
X2 B5
X1 H4
1140 RD/BN
1440 RD/BN
540 RD/BU
840 RD/BU
239 VT/WH
J336
239 VT/WH
B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F4DR 15A
F10DR 15A
F5DR 10A
X2 35
8
33
1540 RD/GN
7740 RD/GN
7140 RD/VT
X210 1
63
53
1540 RD/GN
7740 RD/GN
7140 RD/VT
K9 Body Control Module
4979 BU/YE
4978 WH
4979 BU/YE
4978 WH
4979 BU/YE
4978 WH
X4 22
X3 10
9
X2 23
X5 18
X4 24
X2 22
X1 9
X4 3
4
5
6
11
10
B+
B+
B+
B+
IGN
B+
B+
B+
K219 Lighting Control Module
X4 25
23
1451 BK/WH
1551 BK/WH
G300A
G301B

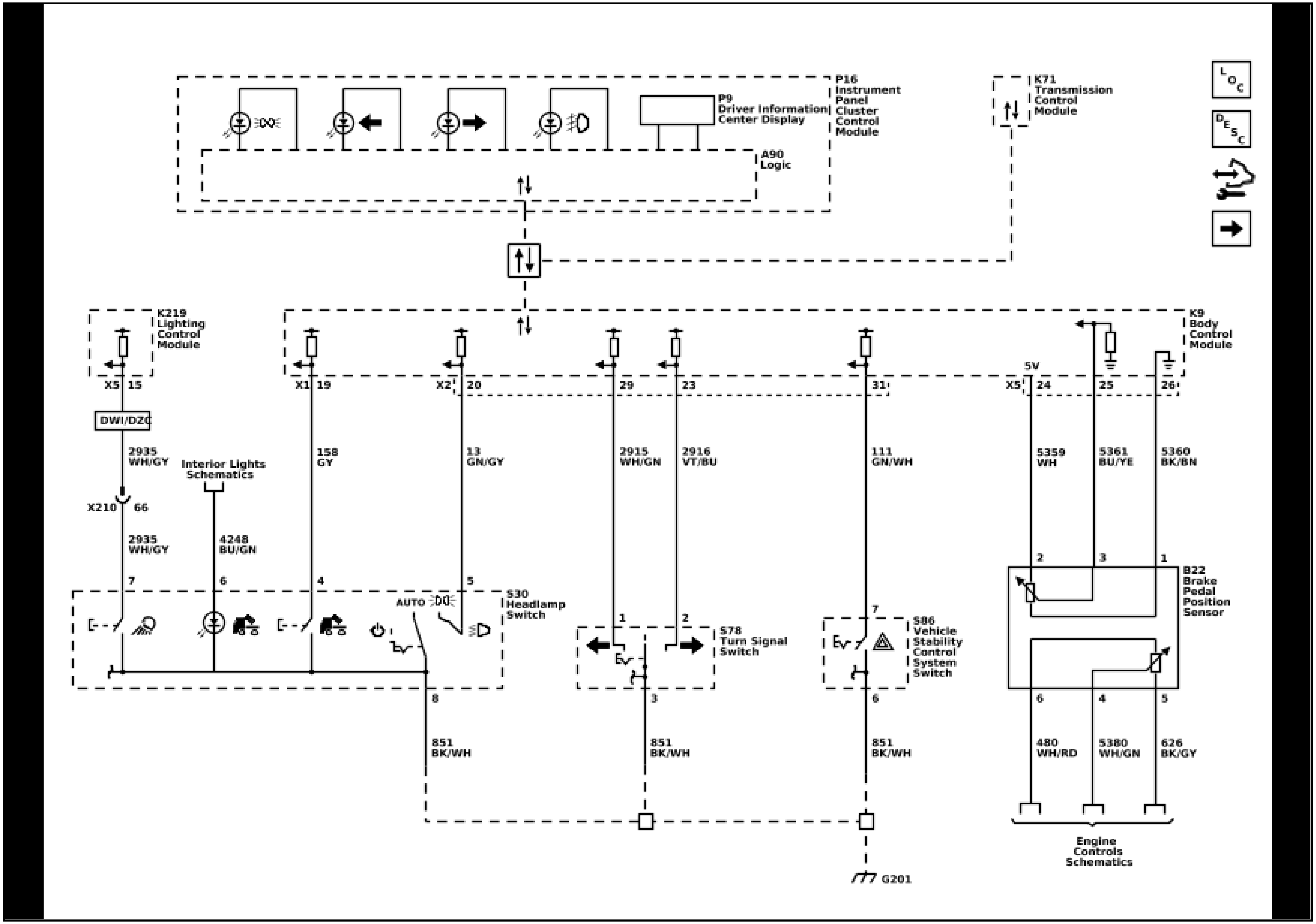
6150420

6150421

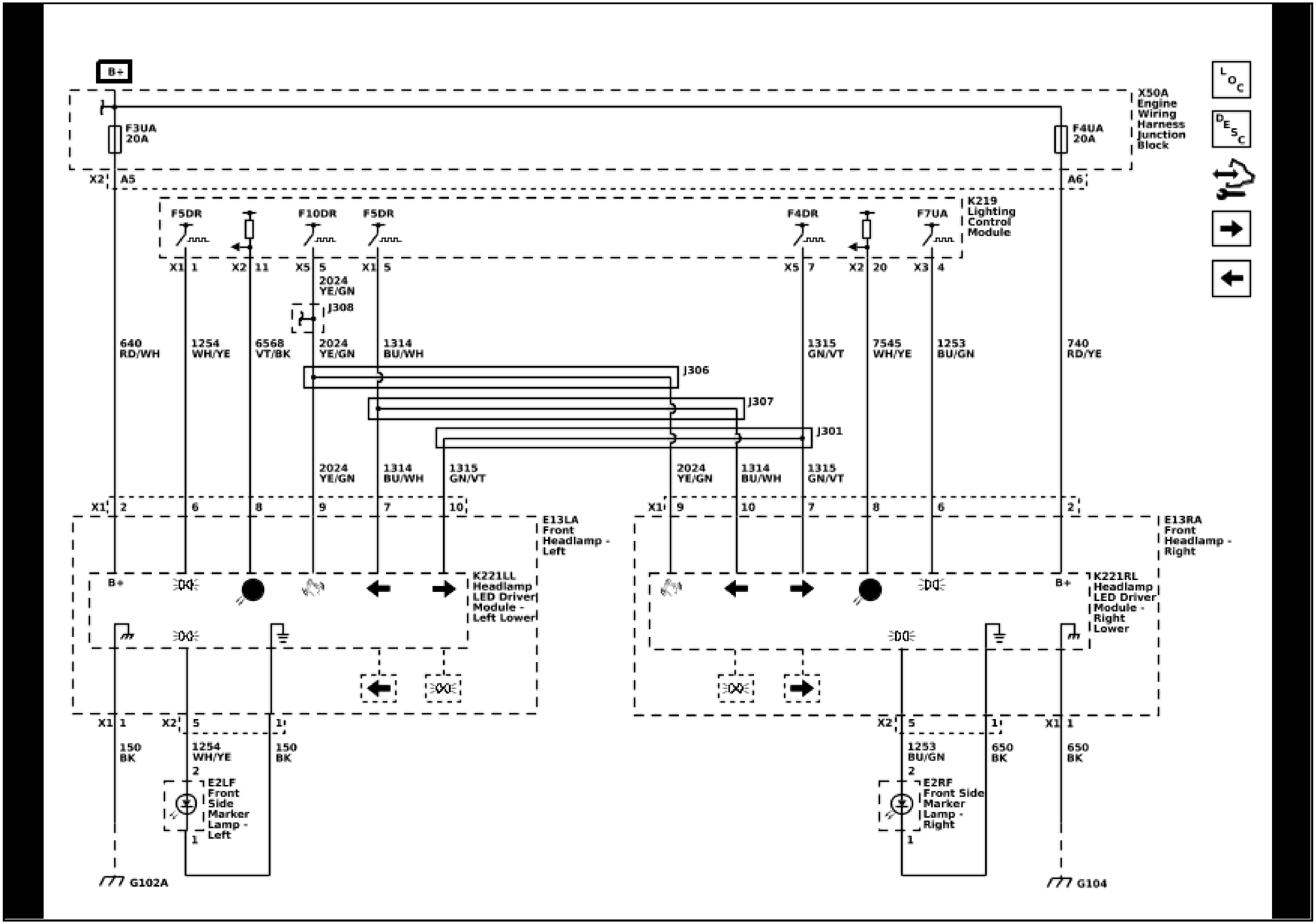
Exterior Lights Schematics Object-ID=6152310 (Lighting Control Module Subsystem References)


Trailering Systems Schematics
38 BU/BN
319 GN/BN
318 YE/BU
Z82
Z82
Z82
X2 4
X5 13
29
F31UA
F10DR
F7UA
Headlights/ Daytime Running Lights (DRL) Schematics
1254 WH/YE
7538 GY/BU
7539 BU/BN
311 WH
312 YE
711 WH
712 YE
1253 BU/GN
X1 1
8
X3 1
11
12
X1 12
10
X3 4
F5DR
F30UA
F10DR
F7UA
F30UA
F31UA
F10UA
F7UA
Cruise Control Schematics
6311 WH/BU
X4 7
Fog Lights Schematics
5061 BN/GY
T3U
X1 6
F5DR
K219 Lighting Control Module
F31UA
F31UA + F4DR
X2 3
10
12
14
21
X5 11
2268 BN/GY
196 BN/GN
91 GY
185 VT
860 WH/VT
1715 GY
Wiper/Washer Schematics

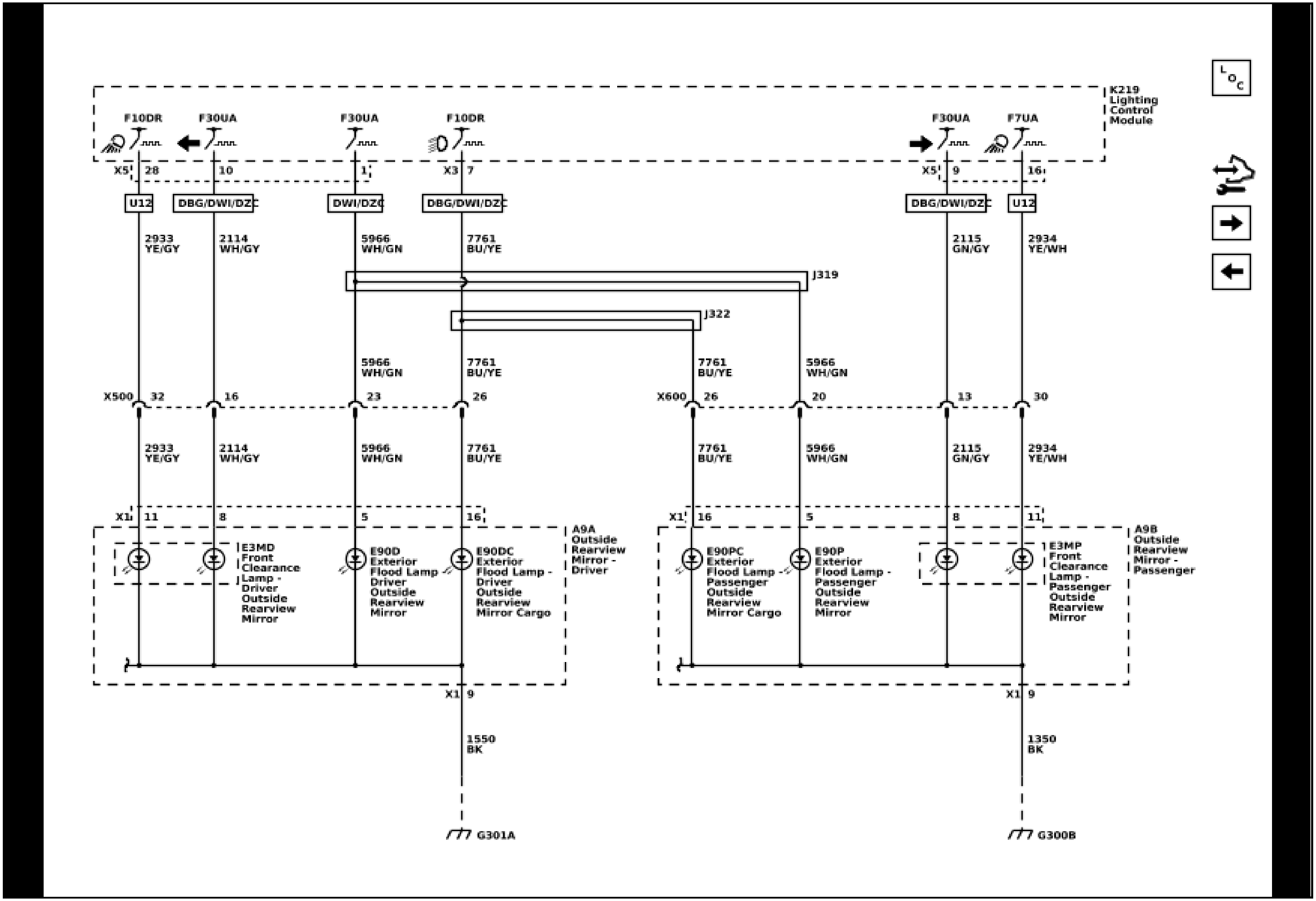
Exterior Lights Schematics Object-ID=6152310 (Controls and Indictors)


P16
Instrument
Panel
Cluster
Control
Module
P9
Driver Information
Center Display
A90
Logic
K71
Transmission
Control
Module
L O C
D E S C
K219
Lighting
Control
Module
X5 15
DWI/DZC
2935
WH/GY
X210 66
2935
WH/GY
Interior Lights
Schematics
4248
BU/GN
K9
Body
Control
Module
X1 19
158
GY
X2 20
13
GN/GY
29
2915
WH/GN
23
2916
VT/BU
31
111
GN/WH
5V
X5 24
5359
WH
25
5361
BU/YE
26
5360
BK/BN
7
6
4
5
AUTO
S30
Headlamp
Switch
8
851
BK/WH
1
2
S78
Turn Signal
Switch
3
851
BK/WH
7
S86
Vehicle
Stability
Control
System
Switch
6
851
BK/WH
G201
2
3
1
B22
Brake
Pedal
Position
Sensor
6
4
5
480
WH/RD
5380
WH/GN
626
BK/GY
Engine
Controls
Schematics
6150418

Exterior Lights Schematics Object-ID=6152310 (Front Turn Signals, Park Lamps, and Side Marker Lamps)

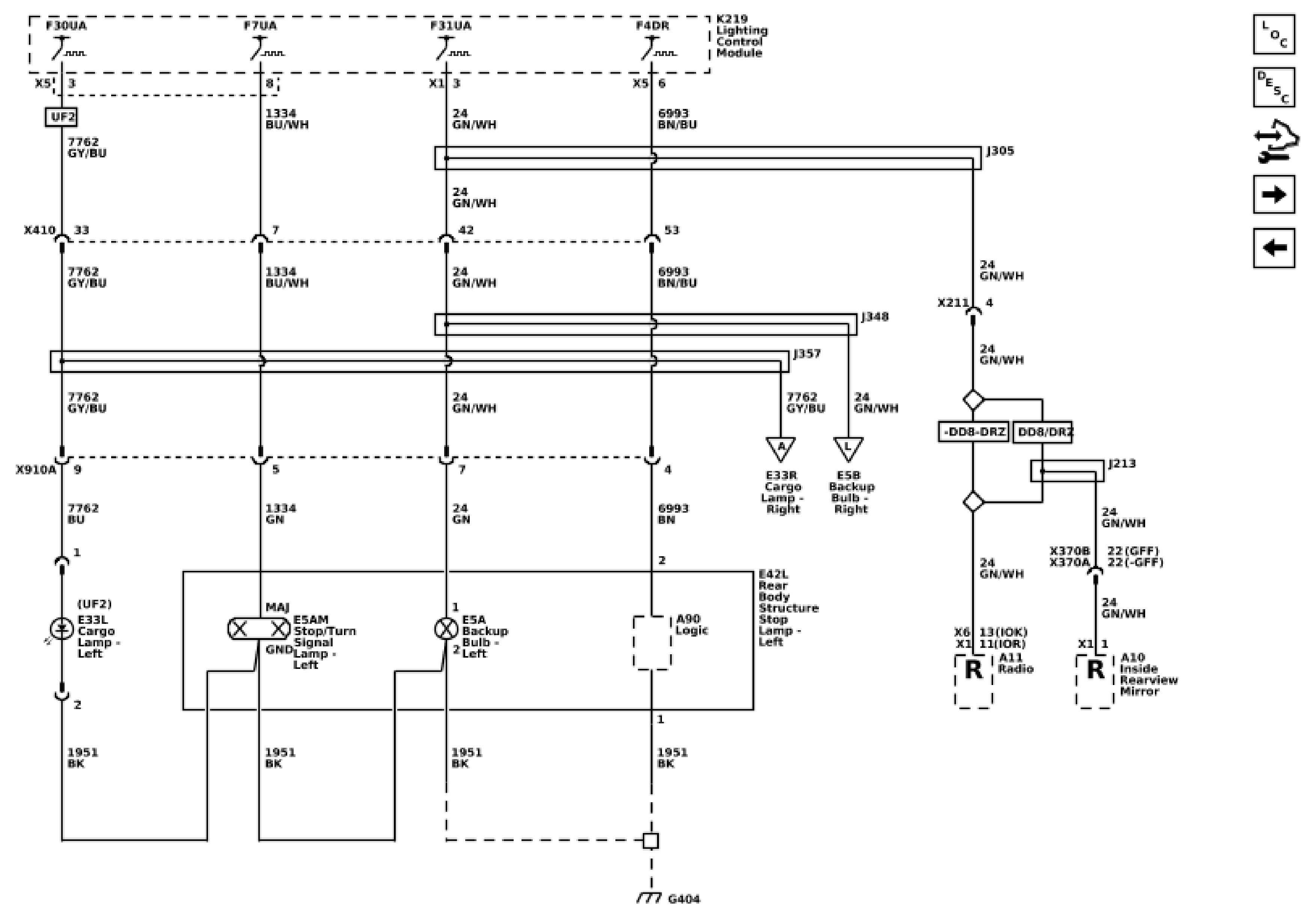

B+
X50A Engine Wiring Harness Junction Block
F3UA 20A
F4UA 20A
X2 A5
A6
K219 Lighting Control Module
F5DR
F10DR
F5DR
F4DR
F7UA
X1 1
X2 11
X5 5
X1 5
X5 7
X2 20
X3 4
2024 YE/GN
J308
640 RD/WH
1254 WH/YE
6568 VT/BK
2024 YE/GN
1314 BU/WH
1315 GN/VT
7545 WH/YE
1253 BU/GN
740 RD/YE
J306
J307
J301
2024 YE/GN
1314 BU/WH
1315 GN/VT
2024 YE/GN
1314 BU/WH
1315 GN/VT
X1 2 6 8 9 7 10
X1 9 10 7 8 6 2
E13LA Front Headlamp - Left
E13RA Front Headlamp - Right
B+
K221LL Headlamp LED Driver Module - Left Lower
B+
K221RL Headlamp LED Driver Module - Right Lower
X1 1
X2 5
1
150 BK
1254 WH/YE
150 BK
2
E2LF Front Side Marker Lamp - Left
1
G102A
X2 5
1
X1 1
1253 BU/GN
650 BK
650 BK
2
E2RF Front Side Marker Lamp - Right
1
G104
LOC
DESC
6150422

Exterior Lights Schematics Object-ID=6152310 (Outside Rearview Mirror Task, Turn, Approach, and Flood Lights (DBG / DWI / DZC))


K219 Lighting Control Module
F10DR
F30UA
F30UA
F10DR
F30UA
F7UA
X5 28
10
1
X3 7
X5 9
16
U12
DBG/DWI/DZC
DWI/DZC
DBG/DWI/DZC
DBG/DWI/DZC
U12
2933 YE/GY
2114 WH/GY
5966 WH/GN
7761 BU/YE
2115 GN/GY
2934 YE/WH
J319
J322
7761 BU/YE
5966 WH/GN
X500 32
16
23
26
X600 26
20
13
30
X1 11
8
5
16
X1 16
5
8
11
A9A Outside Rearview Mirror - Driver
E3MD Front Clearance Lamp - Driver Outside Rearview Mirror
E90D Exterior Flood Lamp Driver Outside Rearview Mirror
E90DC Exterior Flood Lamp - Driver Outside Rearview Mirror Cargo
E90PC Exterior Flood Lamp - Passenger Outside Rearview Mirror Cargo
E90P Exterior Flood Lamp - Passenger Outside Rearview Mirror
E3MP Front Clearance Lamp - Passenger Outside Rearview Mirror
A9B Outside Rearview Mirror - Passenger
X1 9
1550 BK
G301A
X1 9
1350 BK
G300B
L O C

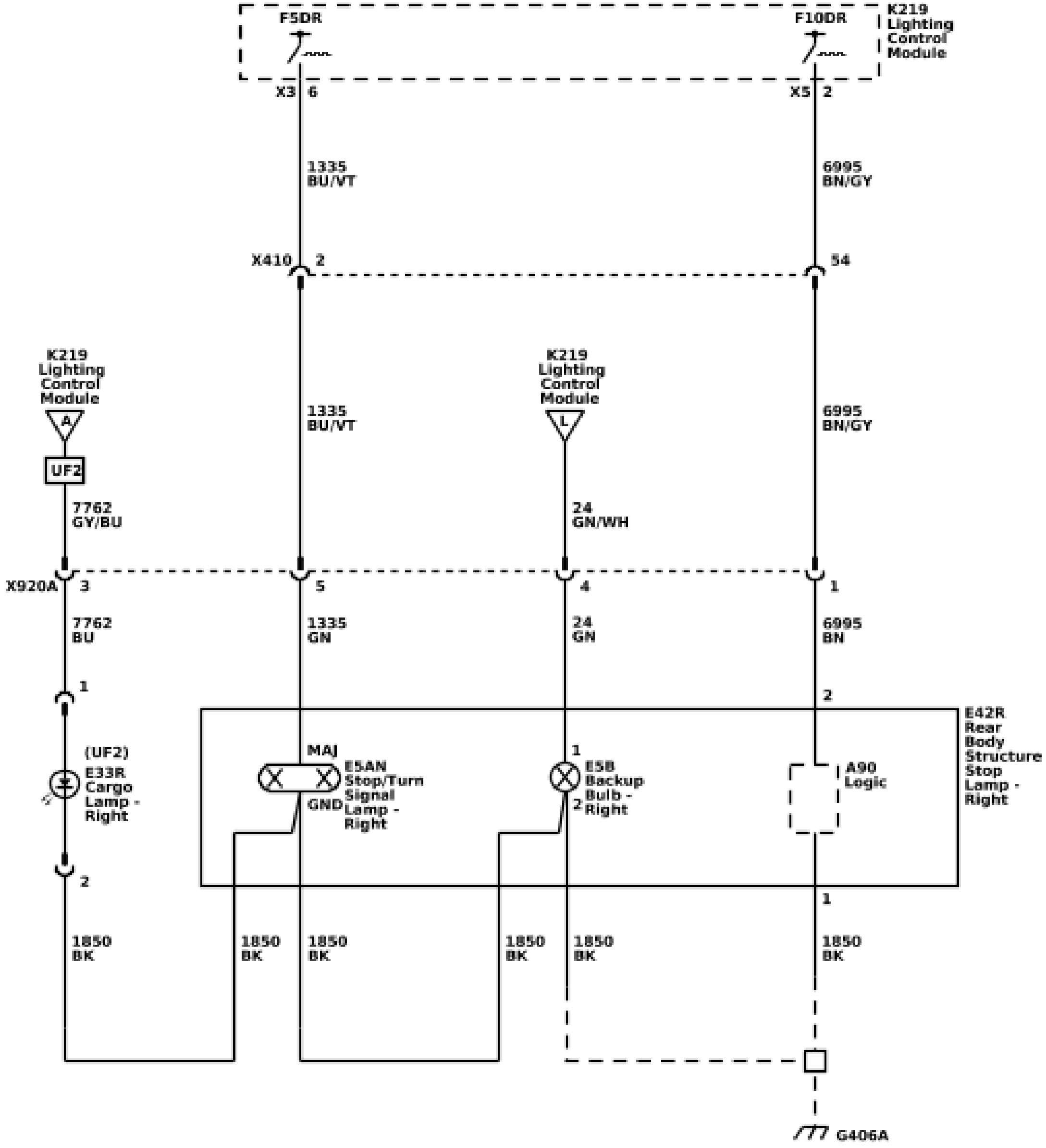
6150423

Exterior Lights Schematics Object-ID=6152310 (Tail Lamp Assembly - Left ((GFF/GFI)&SRW))


F30UA
F7UA
F31UA
F4DR
K219 Lighting Control Module
X5 3
8
X1 3
X5 6
UF2
7762 GY/BU
1334 BU/WH
24 GN/WH
6993 BN/BU
J305
X410 33
7
42
53
J348
J357
X211 4
-DD8-DRZ
DD8/DRZ
J213
E33R Cargo Lamp - Right
E58 Backup Bulb - Right
X910A 9
5
7
4
7762 BU
1334 GN
24 GN
6993 BN
X370B 22 (GFF)
X370A 22 (-GFF)
(UF2) E33L Cargo Lamp - Left
MAJ
GND
E5AM Stop/Turn Signal Lamp - Left
E5A Backup Bulb - Left
A90 Logic
E42L Rear Body Structure Stop Lamp - Left
X6 13 (IOK)
X1 11 (IOR)
A11 Radio
X1 1
A10 Inside Rearview Mirror
1951 BK
G404

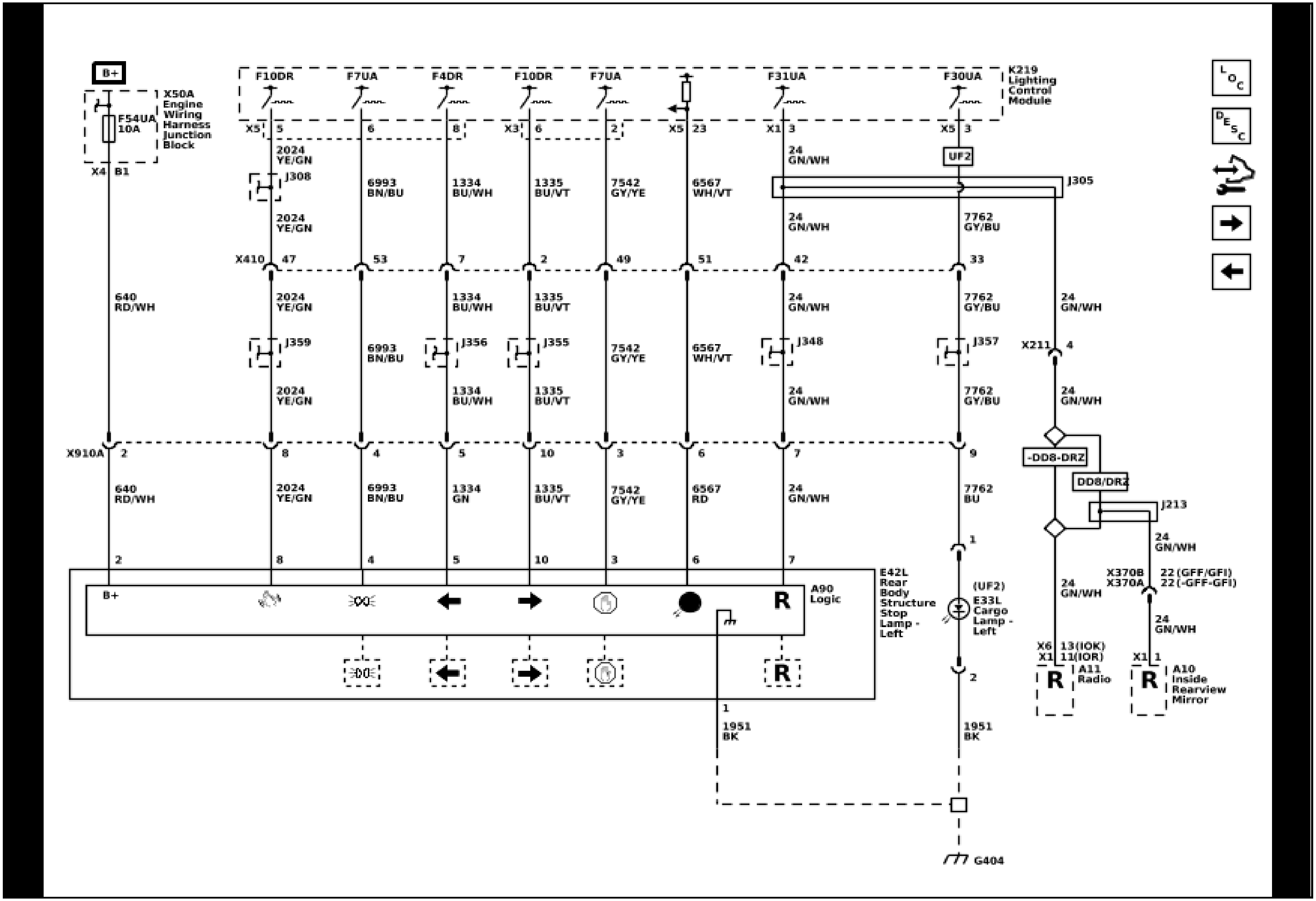
6150424

Exterior Lights Schematics Object-ID=6152310 (Tail Lamp Assembly - Right ((GFF / GFI) & SRW))

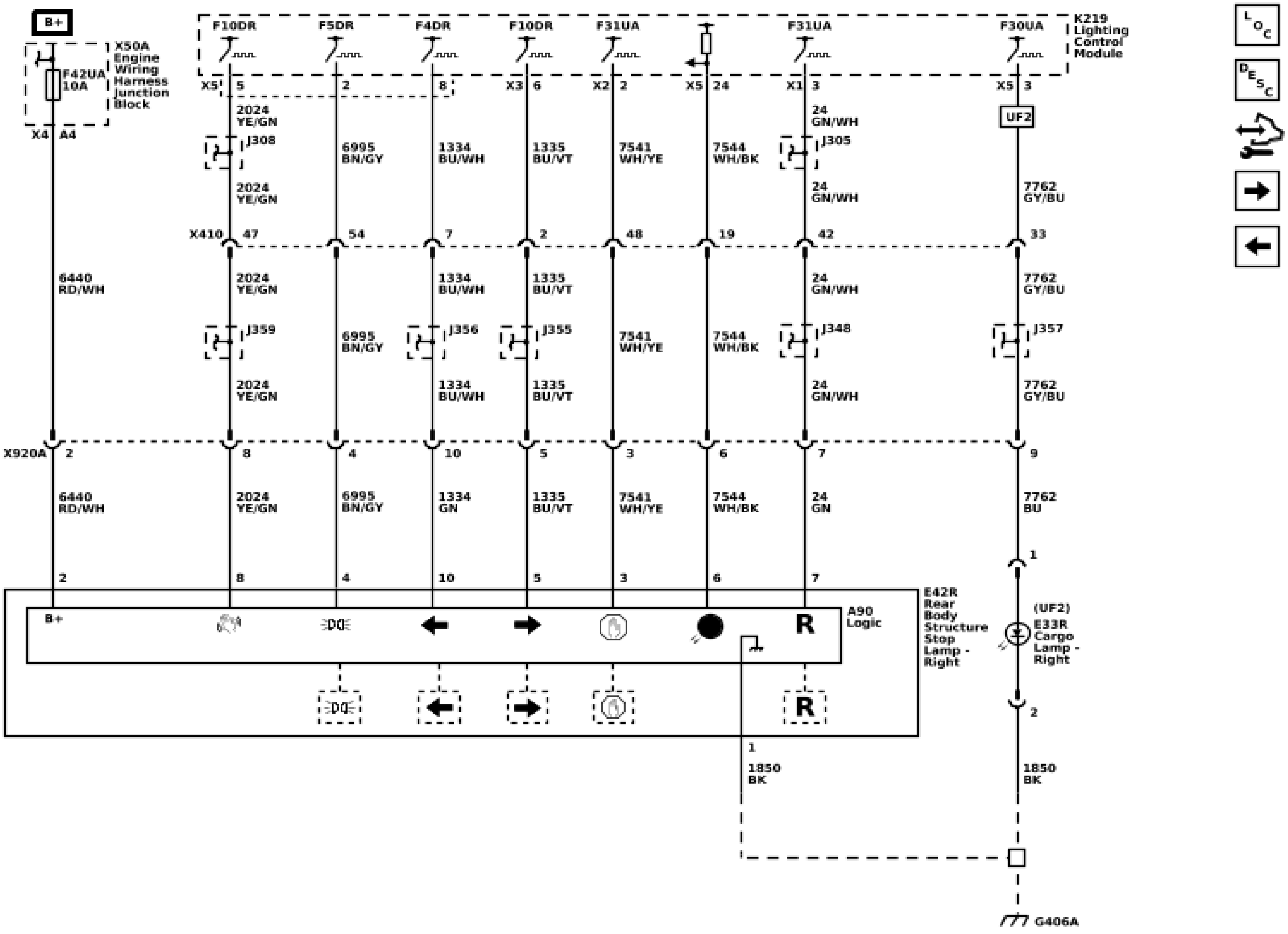

F5DR
F10DR
K219 Lighting Control Module
X3 6
X5 2
1335 BU/VT
6995 BN/GY
X410 2
54
K219 Lighting Control Module
A
UF2
7762 GY/BU
K219 Lighting Control Module
L
24 GN/WH
1335 BU/VT
6995 BN/GY
X920A 3
5
4
1
7762 BU
1335 GN
24 GN
6995 BN
1
2
(UF2) E33R Cargo Lamp - Right
MAJ
E5AN Stop/Turn Signal Lamp - Right
GND
1
E58 Backup Bulb - Right
2
A90 Logic
E42R Rear Body Structure Stop Lamp - Right
2
1
1850 BK
1850 BK
1850 BK
1850 BK
1850 BK
1850 BK
G406A

6150425

Exterior Lights Schematics Object-ID=6152310 (Tail Lamp Assembly - Left (DZW/(GA4/GFG/GFU/GFW/GFY)&SRW))

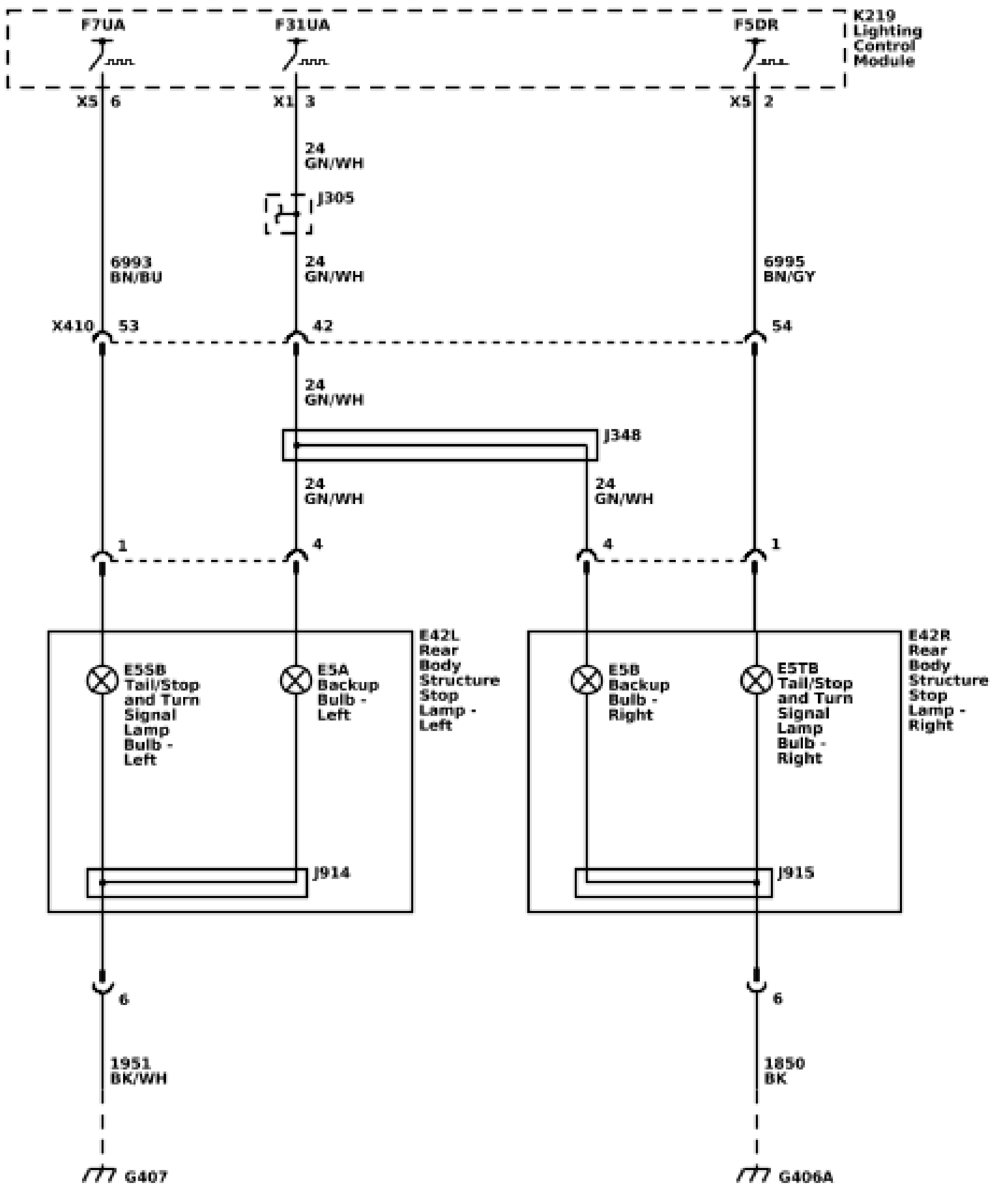

B+
X50A Engine Wiring Harness Junction Block
F54UA 10A
X4 B1
640 RD/WH
X910A 2
K219 Lighting Control Module
F10DR
F7UA
F4DR
F10DR
F7UA
F31UA
F30UA
X5 5
6
8
X3 6
2
X5 23
X1 3
X5 3
UF2
J305
2024 YE/GN
J308
6993 BN/BU
1334 BU/WH
1335 BU/VT
7542 GY/YE
6567 WH/VT
24 GN/WH
7762 GY/BU
X410 47
53
7
2
49
51
42
33
J359
J356
J355
J348
J357
X211 4
8
4
5
10
3
6
7
9
1334 GN
6567 RD
7762 BU
-DD8-DRZ
DD8/DRZ
J213
E42L Rear Body Structure Stop Lamp - Left
A90 Logic
B+
R
(UF2)
E33L Cargo Lamp - Left
1
2
X370B 22 (GFF/GFI)
X370A 22 (-GFF-GFI)
X6 13(IOK)
X1 11(IOR)
A11 Radio
X1 1
A10 Inside Rearview Mirror
1951 BK
G404
6150426

Exterior Lights Schematics Object-ID=6152310 (Tail Lamp Assembly - Right (DZW / (GA4 / GFG / GFU / GFW / GFY) & SRW))


B+
F42UA 10A
X50A Engine Wiring Harness Junction Block
X4 A4
6440 RD/WH
X920A 2
6440 RD/WH
F10DR
F5DR
F4DR
F10DR
F31UA
F31UA
F30UA
K219 Lighting Control Module
X5 5
2
8
X3 6
X2 2
X5 24
X1 3
X5 3
UF2
2024 YE/GN
J308
2024 YE/GN
6995 BN/GY
1334 BU/WH
1335 BU/VT
7541 WH/YE
7544 WH/BK
24 GN/WH
J305
24 GN/WH
7762 GY/BU
X410 47
54
7
2
48
19
42
33
2024 YE/GN
J359
2024 YE/GN
6995 BN/GY
1334 BU/WH
J356
1334 BU/WH
1335 BU/VT
J355
1335 BU/VT
7541 WH/YE
7544 WH/BK
24 GN/WH
J348
24 GN/WH
7762 GY/BU
J357
7762 GY/BU
8
4
10
5
3
6
7
9
2024 YE/GN
6995 BN/GY
1334 GN
1335 BU/VT
7541 WH/YE
7544 WH/BK
24 GN
7762 BU
1
2
8
4
10
5
3
6
7
B+
R
A90 Logic
R
E42R Rear Body Structure Stop Lamp - Right
(UF2) E33R Cargo Lamp - Right
2
1
1850 BK
1850 BK
G406A

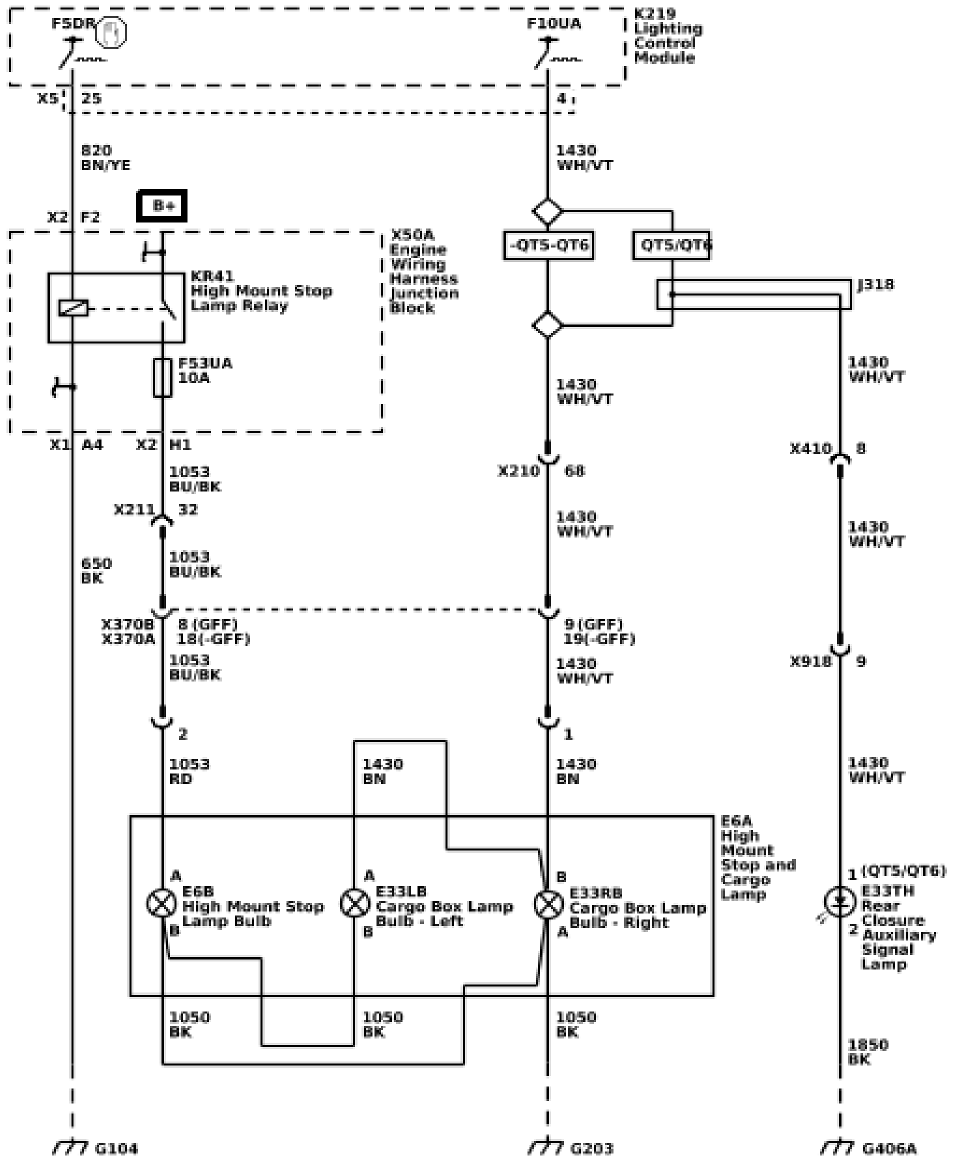
6150427

Exterior Lights Schematics Object-ID=6152310 (Tail Lamp Assemblies (ZW9))


F7UA
F31UA
F5DR
K219
Lighting
Control
Module
X5 6
X1 3
X5 2
24
GN/WH
J305
6993
BN/BU
24
GN/WH
6995
BN/GY
X410 53
42
54
24
GN/WH
J348
24
GN/WH
24
GN/WH
1
4
4
1
E55B
Tail/Stop
and Turn
Signal
Lamp
Bulb -
Left
E5A
Backup
Bulb -
Left
E42L
Rear
Body
Structure
Stop
Lamp -
Left
E5B
Backup
Bulb -
Right
E5TB
Tail/Stop
and Turn
Signal
Lamp
Bulb -
Right
E42R
Rear
Body
Structure
Stop
Lamp -
Right
J914
J915
6
6
1951
BK/WH
1850
BK
G407
G406A

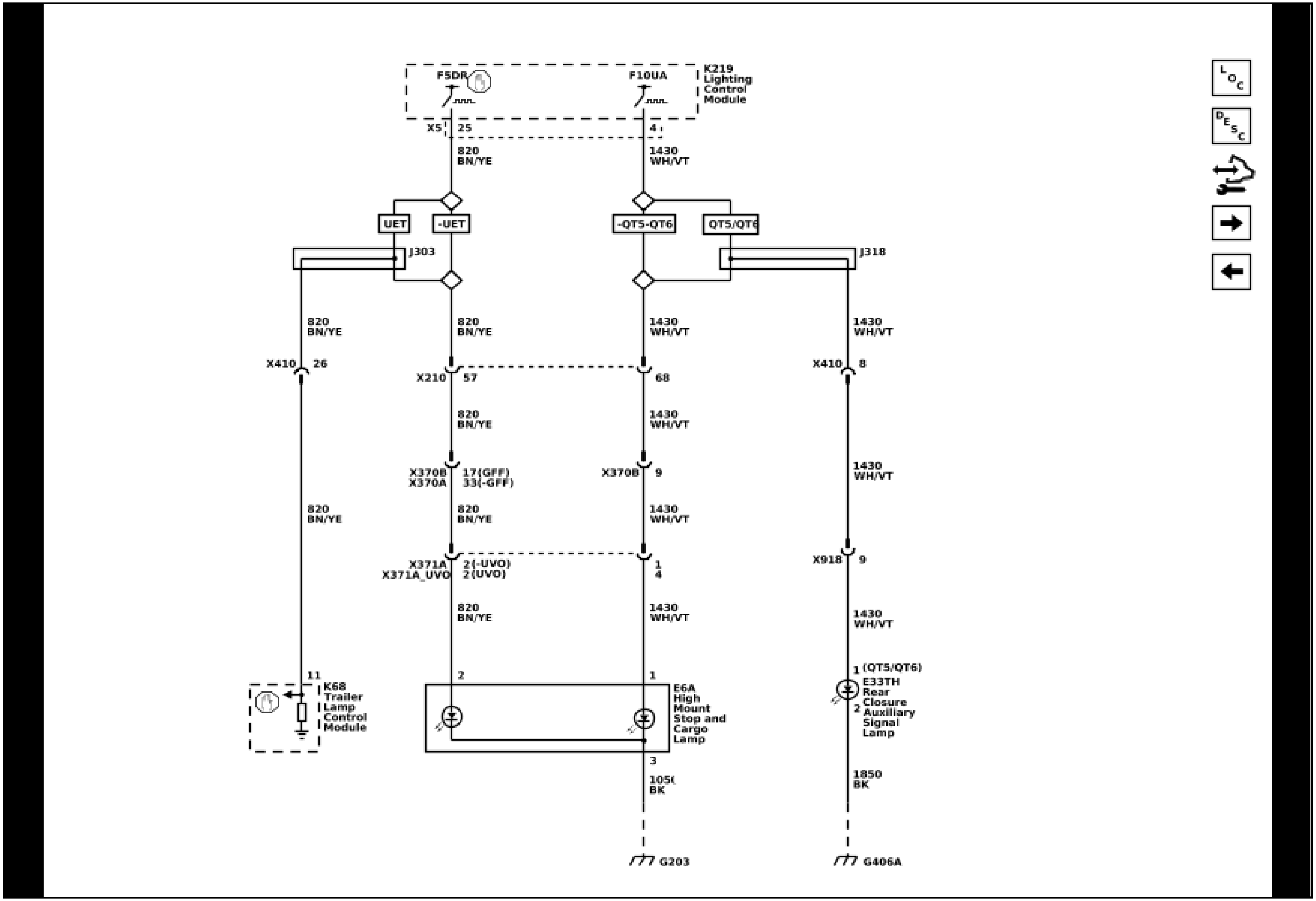
6150428

Exterior Lights Schematics Object-ID=6152310 (Center High Mount Stop and Exterior Courtesy Lights - Regular Cab)


F5DR
F10UA
K219 Lighting Control Module
X5 25
4
820 BN/YE
1430 WH/VT
B+
X2 F2
-QT5-QT6
QT5/QT6
X50A Engine Wiring Harness Junction Block
KR41 High Mount Stop Lamp Relay
J318
F53UA 10A
1430 WH/VT
X1 A4
X2 H1
1053 BU/BK
X210 68
X410 8
X211 32
1430 WH/VT
1430 WH/VT
650 BK
1053 BU/BK
X370B X370A
8 (GFF) 18(-GFF)
9 (GFF) 19(-GFF)
X918 9
1053 BU/BK
1430 WH/VT
2
1
1053 RD
1430 BN
1430 BN
1430 WH/VT
E6A High Mount Stop and Cargo Lamp
A
E6B High Mount Stop Lamp Bulb
B
A
E33LB Cargo Box Lamp Bulb - Left
B
B
E33RB Cargo Box Lamp Bulb - Right
A
1 (QT5/QT6)
E33TH Rear Closure Auxiliary Signal Lamp
2
1050 BK
1050 BK
1050 BK
1850 BK
G104
G203
G406A

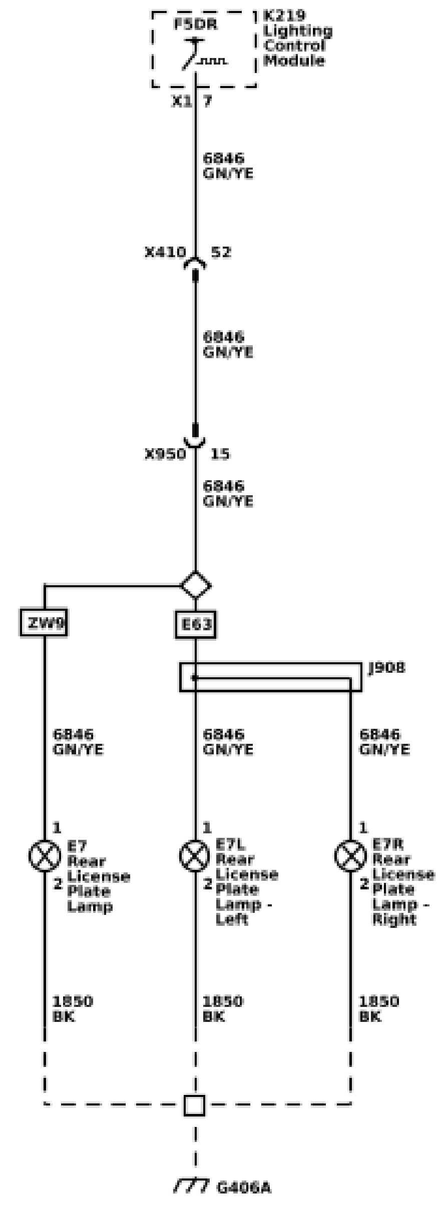
6150429

Exterior Lights Schematics Object-ID=6152310 (Center High Mount Stop and Exterior Courtesy Lights - Double Cab/Crew Cab)


F5DR
F10UA
K219 Lighting Control Module
X5
25
4
820 BN/YE
1430 WH/VT
UET
-UET
-QT5-QT6
QT5/QT6
J303
J318
820 BN/YE
820 BN/YE
1430 WH/VT
1430 WH/VT
X410
26
X210
57
68
X410
8
820 BN/YE
1430 WH/VT
X370B
X370A
17(GFF)
33(-GFF)
X370B
9
1430 WH/VT
820 BN/YE
820 BN/YE
1430 WH/VT
X371A
X371A_UVO
2(-UVO)
2(UVO)
1
4
X918
9
820 BN/YE
1430 WH/VT
1430 WH/VT
11
K68 Trailer Lamp Control Module
2
1
E6A High Mount Stop and Cargo Lamp
1 (QT5/QT6)
E33TH Rear Closure Auxiliary Signal Lamp
2
3
105(
BK
1850
BK
G203
G406A

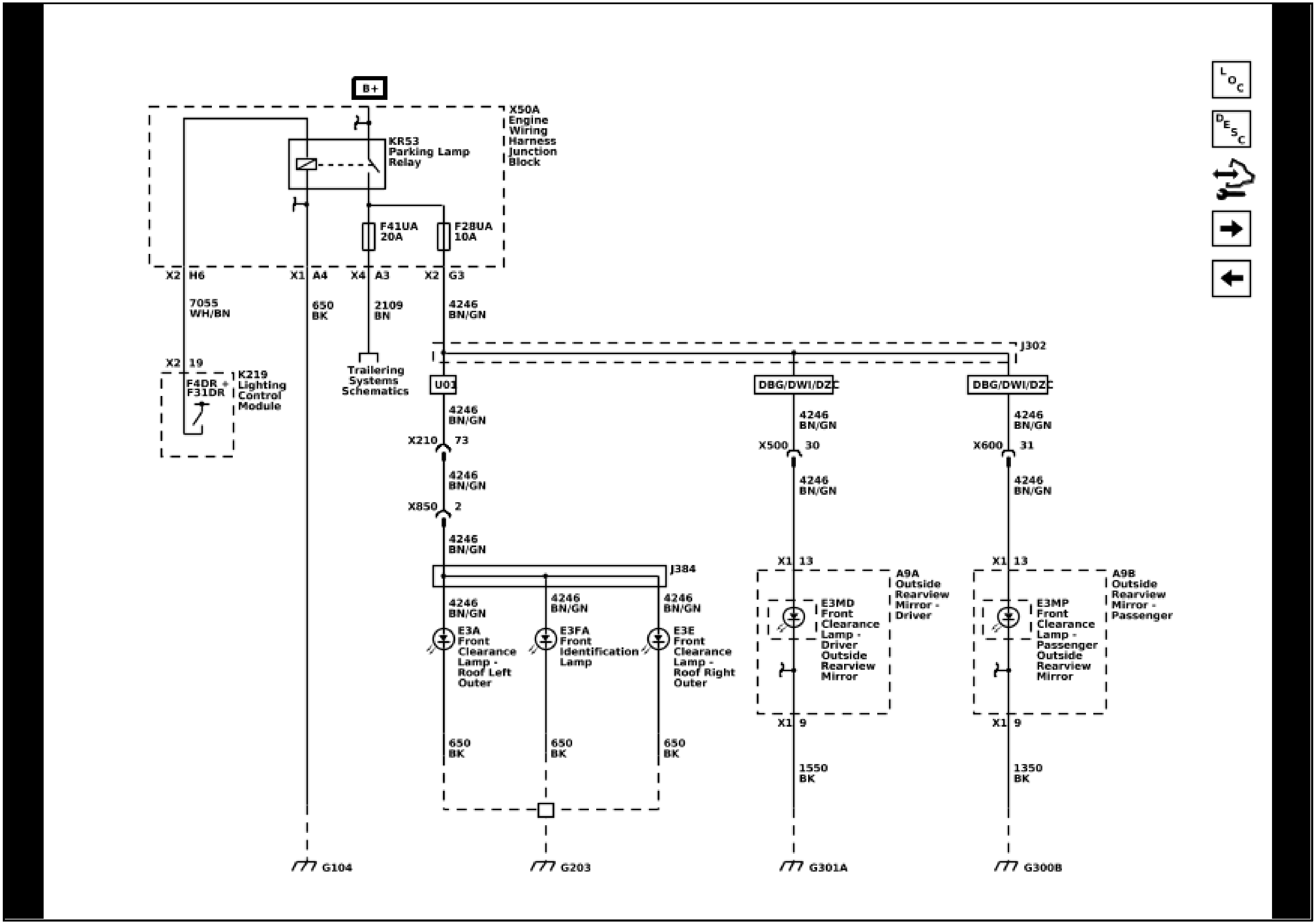
6150430

Exterior Lights Schematics Object-ID=6152310 (License Plate Lamps)


F5DR
K219
Lighting
Control
Module
X1 7
6846
GN/YE
X410 52
6846
GN/YE
X950 15
6846
GN/YE
ZW9
E63
J908
6846
GN/YE
6846
GN/YE
6846
GN/YE
1
E7
Rear
License
Plate
Lamp
2
1
E7L
Rear
License
Plate
Lamp -
Left
2
1
E7R
Rear
License
Plate
Lamp -
Right
2
1850
BK
1850
BK
1850
BK
G406A

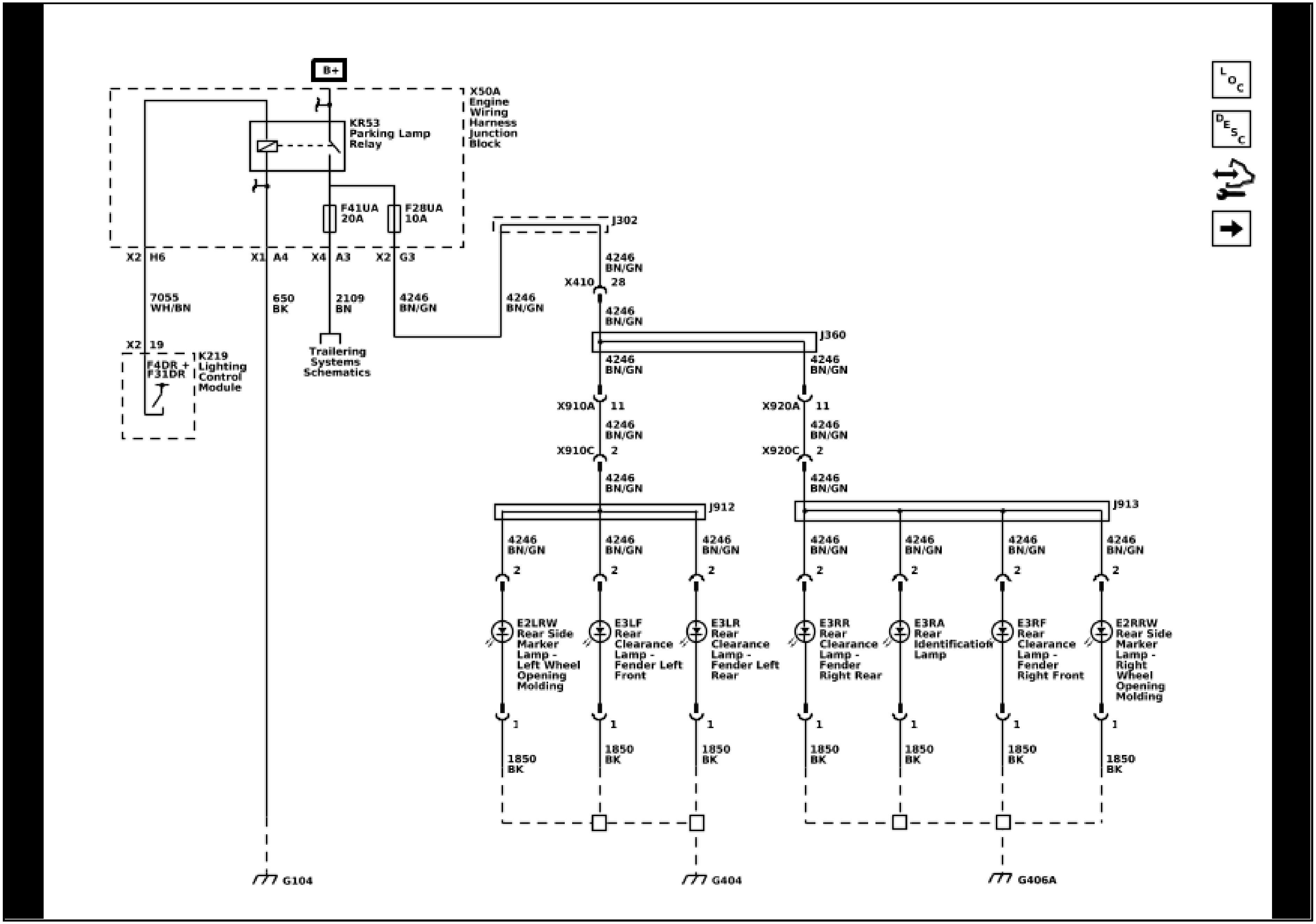
6150431

Exterior Lights Schematics Object-ID=6152310 (Identification Lights - Front)


B+
X50A Engine Wiring Harness Junction Block
KR53 Parking Lamp Relay
F41UA 20A
F28UA 10A
X2 H6
X1 A4
X4 A3
X2 G3
7055 WH/BN
650 BK
2109 BN
4246 BN/GN
X2 19
F4DR + F31DR
K219 Lighting Control Module
Trailering Systems Schematics
J302
U01
DBG/DWI/DZC
DBG/DWI/DZC
4246 BN/GN
X210 73
4246 BN/GN
X850 2
4246 BN/GN
J384
4246 BN/GN
E3A Front Clearance Lamp - Roof Left Outer
4246 BN/GN
E3FA Front Identification Lamp
4246 BN/GN
E3E Front Clearance Lamp - Roof Right Outer
650 BK
650 BK
650 BK
4246 BN/GN
X500 30
4246 BN/GN
X1 13
A9A Outside Rearview Mirror - Driver
E3MD Front Clearance Lamp - Driver Outside Rearview Mirror
X1 9
1550 BK
4246 BN/GN
X600 31
4246 BN/GN
X1 13
A9B Outside Rearview Mirror - Passenger
E3MP Front Clearance Lamp - Passenger Outside Rearview Mirror
X1 9
1350 BK
G104
G203
G301A
G300B
L O C
D E S C

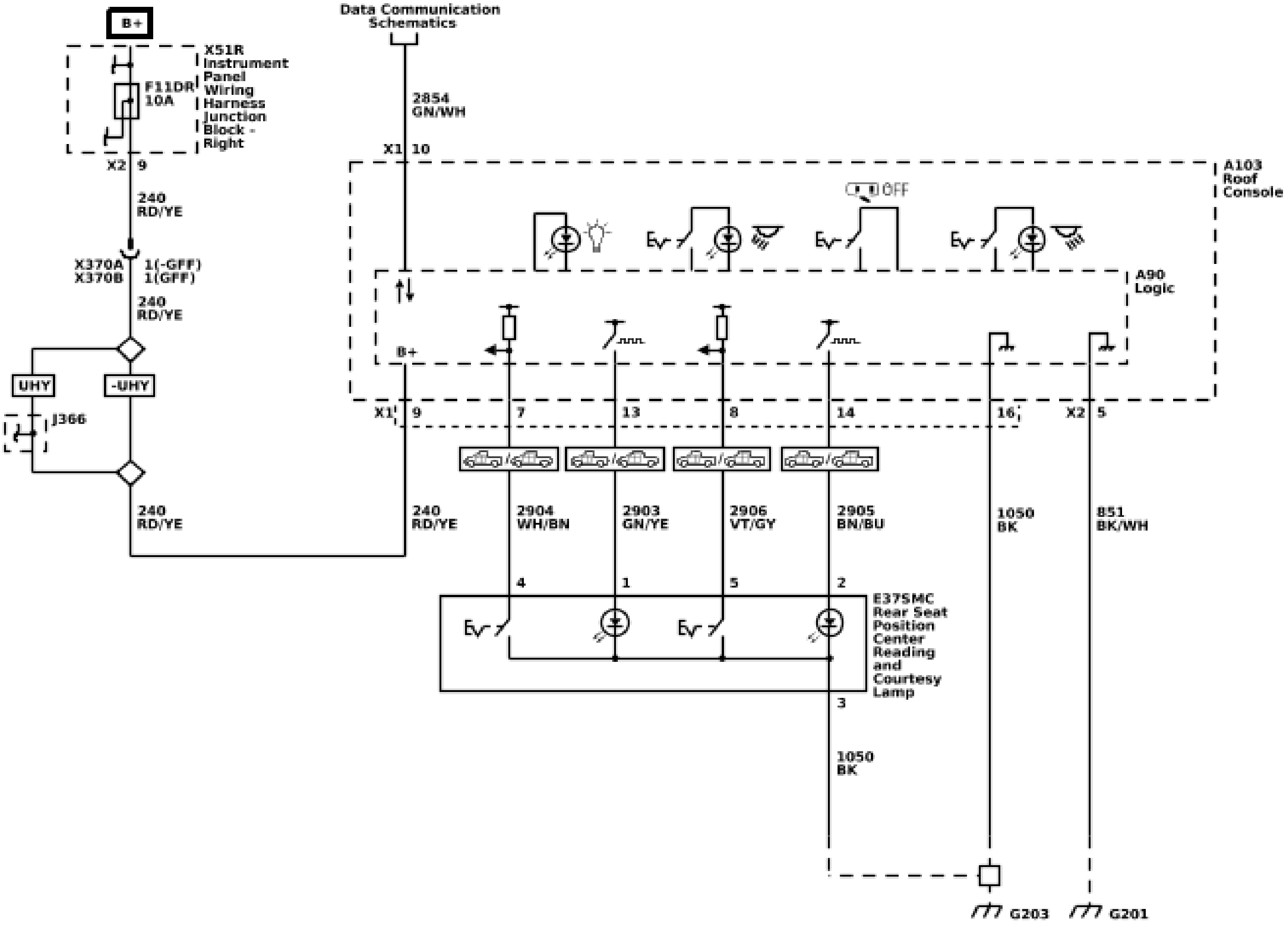
6150432

Exterior Lights Schematics Object-ID=6152310 (Identification Lights - Rear)


B+
X50A Engine Wiring Harness Junction Block
KR53 Parking Lamp Relay
F41UA 20A
F28UA 10A
X2 H6
X1 A4
X4 A3
X2 G3
7055 WH/BN
650 BK
2109 BN
4246 BN/GN
Trailering Systems Schematics
X2 19
F4DR + F31DR
K219 Lighting Control Module
J302
X410 28
J360
X910A 11
X910C 2
X920A 11
X920C 2
J912
J913
2
1
1850 BK
E2LRW Rear Side Marker Lamp - Left Wheel Opening Molding
E3LF Rear Clearance Lamp - Fender Left Front
E3LR Rear Clearance Lamp - Fender Left Rear
E3RR Rear Clearance Lamp - Fender Right Rear
E3RA Rear Identification Lamp
E3RF Rear Clearance Lamp - Fender Right Front
E2RRW Rear Side Marker Lamp - Right Wheel Opening Molding
G104
G404
G406A

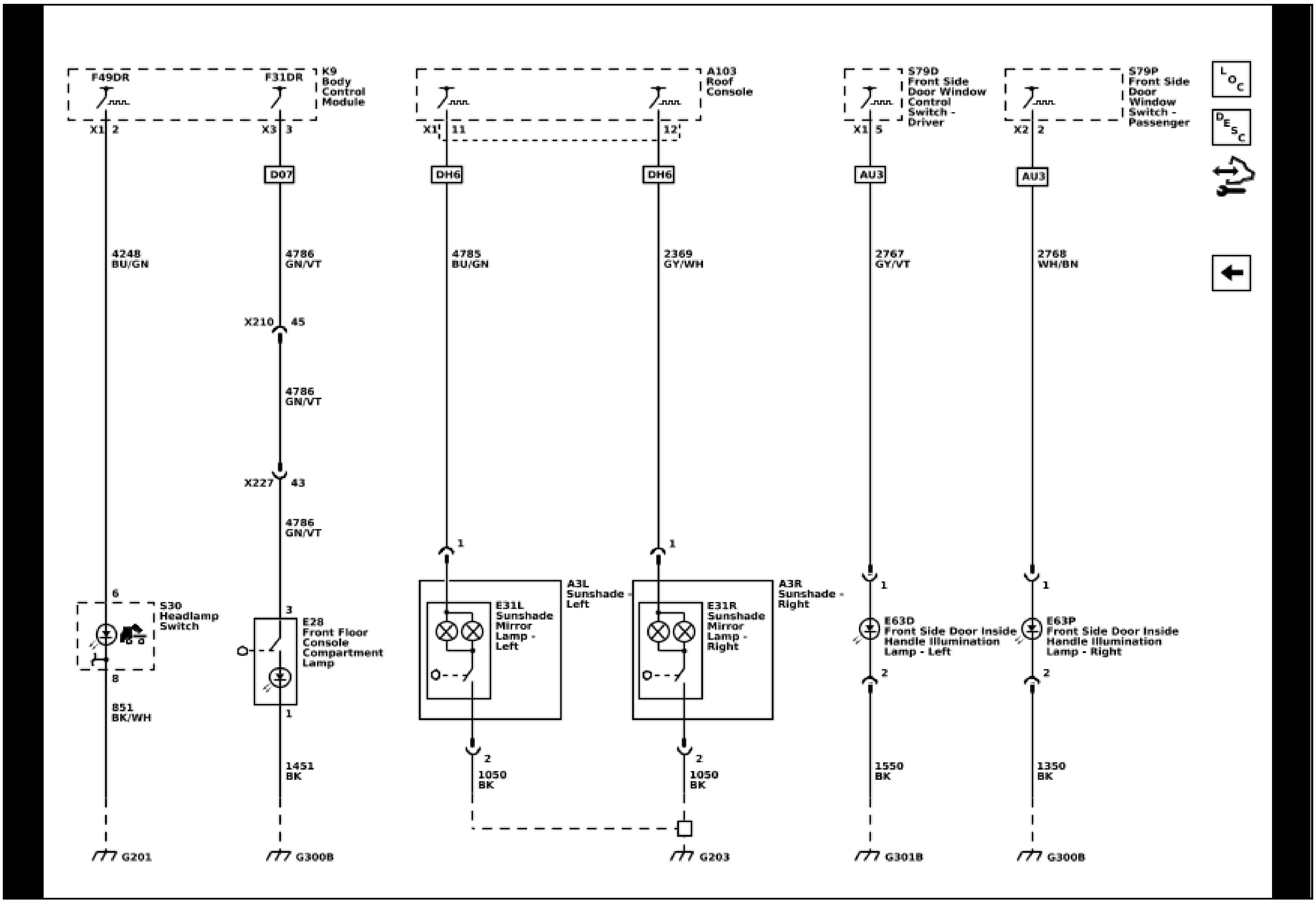
6150433

Interior Lights Schematics Object-ID=6152312 (Roof Console and Rear Seat Reading and Courtesy Lamps - Double Cab/Crew Cab)


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F11DR 10A
X2 9
240 RD/YE
X370A 1(-GFF)
X370B 1(GFF)
240 RD/YE
UHY
-UHY
J366
240 RD/YE
Data Communication Schematics
2854 GN/WH
X1 10
A103 Roof Console
OFF
A90 Logic
B+
X1 9
7
13
8
14
16
X2 5
240 RD/YE
2904 WH/BN
2903 GN/YE
2906 VT/GY
2905 BN/BU
1050 BK
851 BK/WH
4
1
5
2
E37SMC Rear Seat Position Center Reading and Courtesy Lamp
3
1050 BK
G203
G201

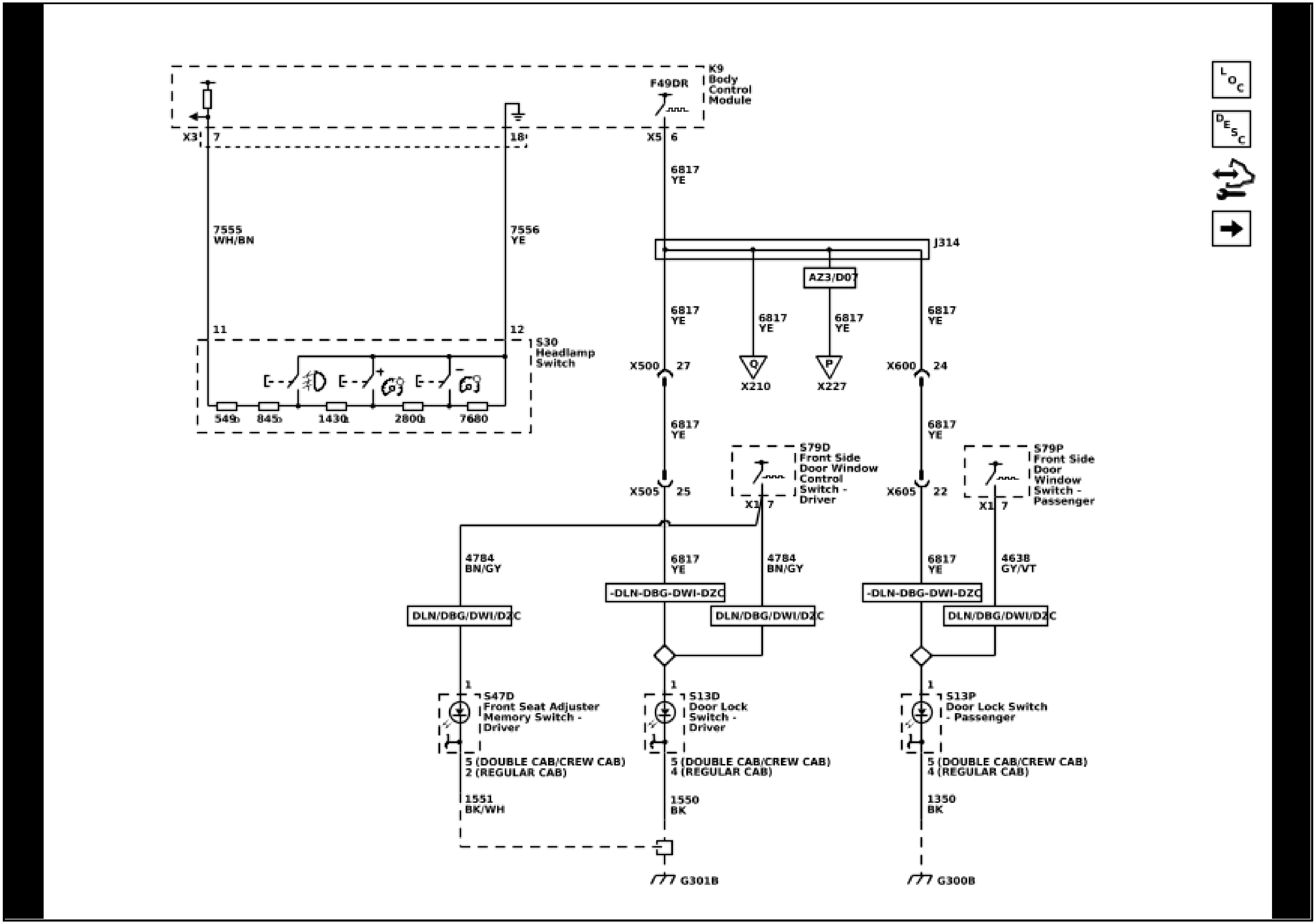
6150434

Interior Lights Schematics Object-ID=6152312 (Cargo Lamp Indicator, Sunshade, Center Console, and Door Lamps)


F49DR
F31DR
K9 Body Control Module
X1 2
X3 3
D07
4248 BU/GN
4786 GN/VT
X210 45
4786 GN/VT
X227 43
4786 GN/VT
6
S30 Headlamp Switch
8
851 BK/WH
G201
3
E28 Front Floor Console Compartment Lamp
1
1451 BK
G300B
A103 Roof Console
X1 11
12
DH6
DH6
4785 BU/GN
2369 GY/WH
1
1
A3L Sunshade - Left
E31L Sunshade Mirror Lamp - Left
A3R Sunshade - Right
E31R Sunshade Mirror Lamp - Right
2
1050 BK
2
1050 BK
G203
S79D Front Side Door Window Control Switch - Driver
X1 5
AU3
2767 GY/VT
1
E63D Front Side Door Inside Handle Illumination Lamp - Left
2
1550 BK
G301B
S79P Front Side Door Window Switch - Passenger
X2 2
AU3
2768 WH/BN
1
E63P Front Side Door Inside Handle Illumination Lamp - Right
2
1350 BK
G300B
LOC
DESC

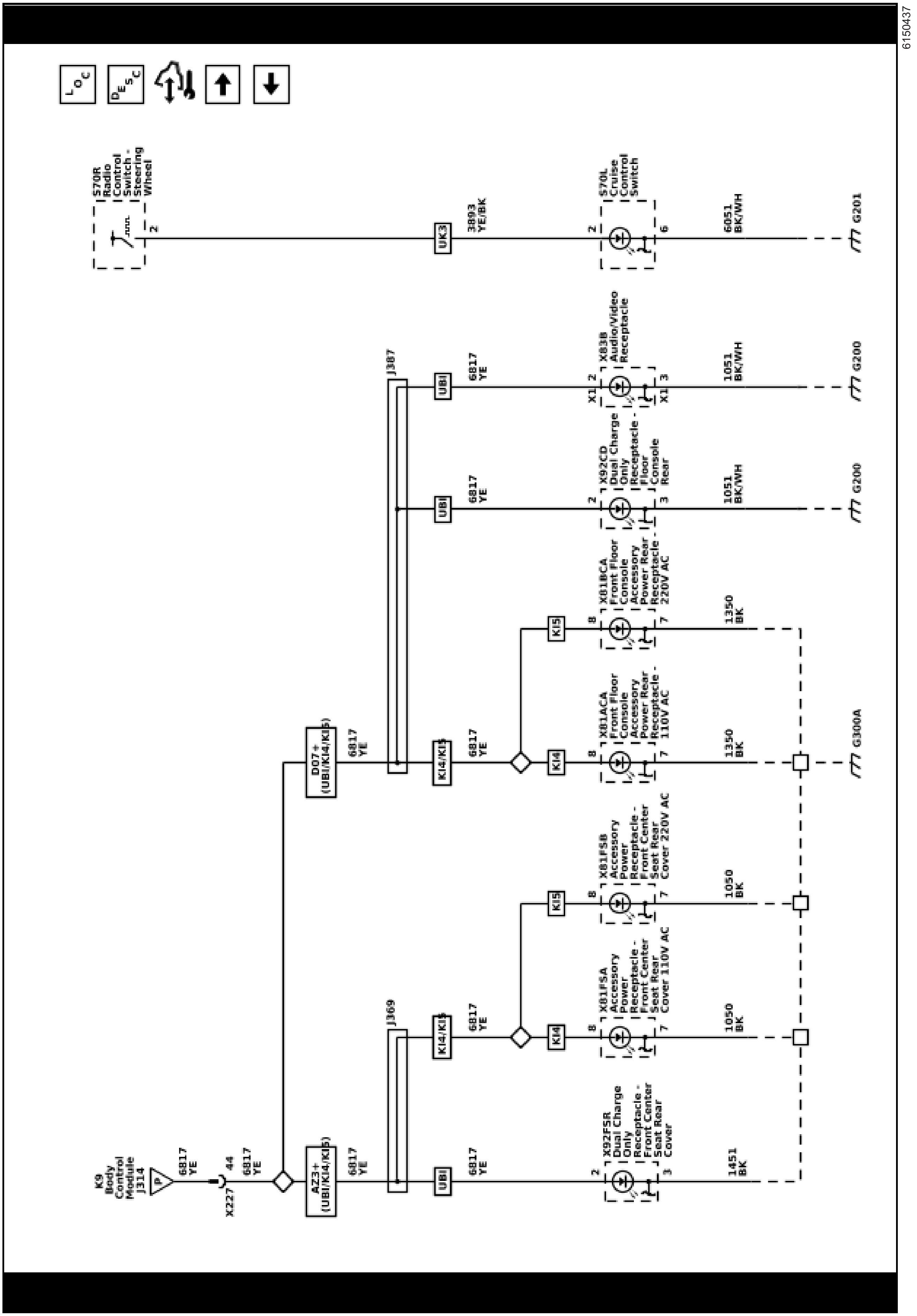
6150435

Interior Lights Dimming Schematics Object-ID=6152314 (Controls and Front Door Backlights)

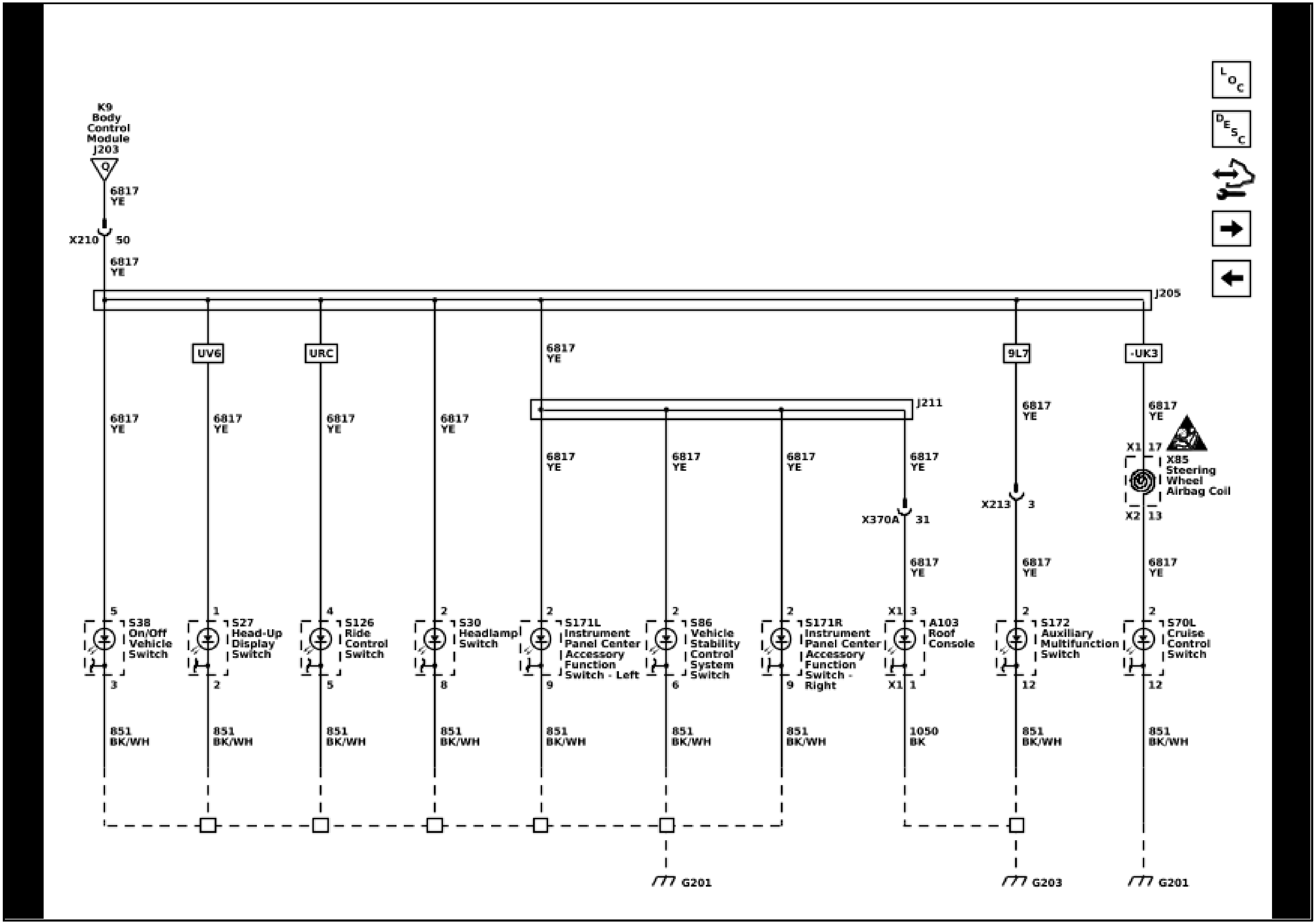

K9 Body Control Module
F49DR
X3 7
18
X5 6
6817 YE
7555 WH/BN
7556 YE
J314
AZ3/D07
11
12
S30 Headlamp Switch
549Ω
845Ω
1430Ω
2800Ω
7680
X500 27
X210
X227
X600 24
X505 25
X605 22
S79D Front Side Door Window Control Switch - Driver
X1 7
S79P Front Side Door Window Switch - Passenger
4784 BN/GY
4638 GY/VT
-DLN-DBG-DWI-DZC
DLN/DBG/DWI/DZC
1
S47D Front Seat Adjuster Memory Switch - Driver
S13D Door Lock Switch - Driver
S13P Door Lock Switch - Passenger
5 (DOUBLE CAB/CREW CAB)
2 (REGULAR CAB)
4 (REGULAR CAB)
1551 BK/WH
1550 BK
1350 BK
G301B
G300B

6150436

Interior Lights Dimming Schematics Object-ID=6152314 (Steering Wheel, Floor Console, and Center Seat Backlights)

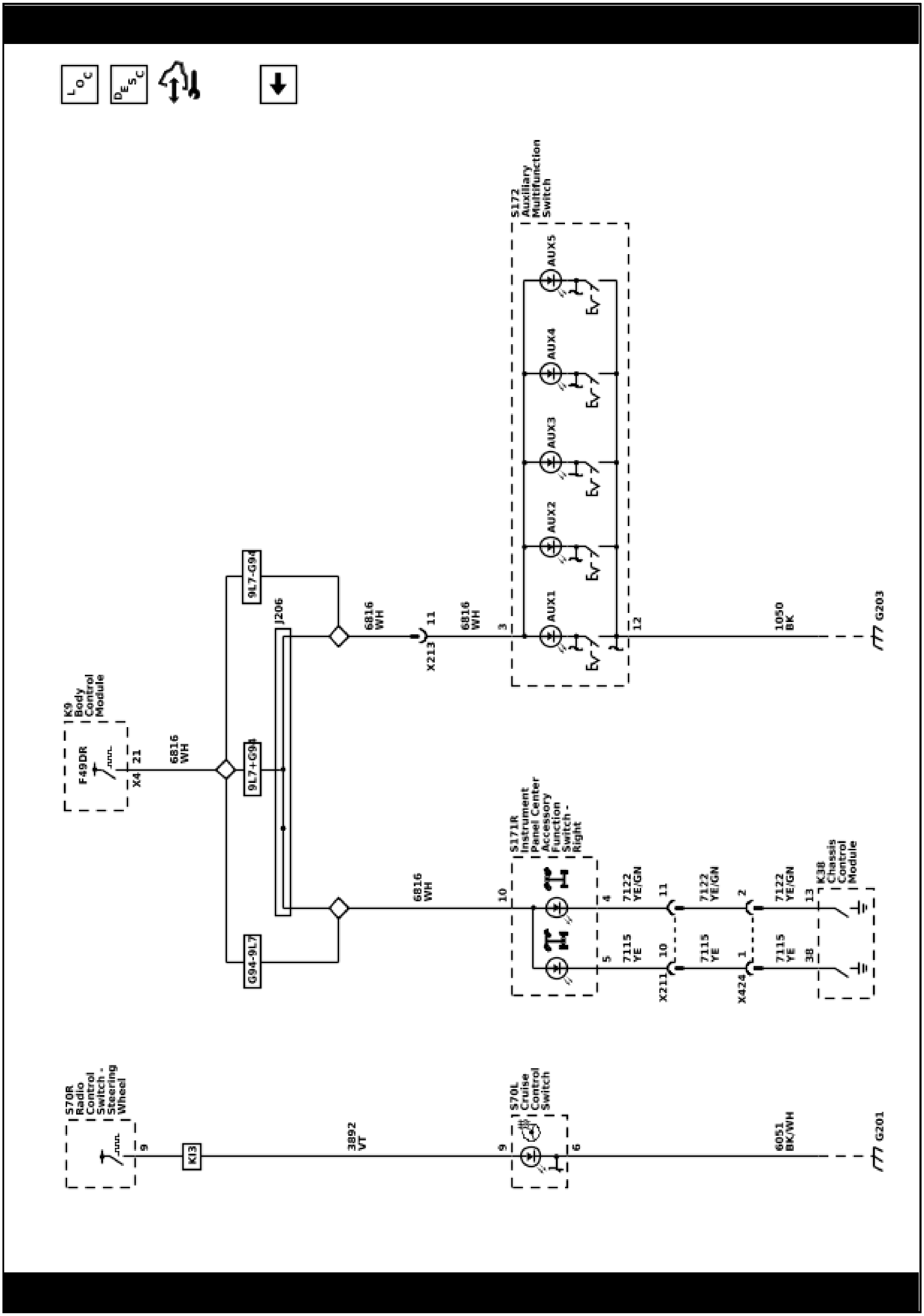

6150437
K9 Body Control Module J314
P
6817 YE
X227 44
6817 YE
AZ3+ (UBI/KI4/KI5)
6817 YE
J369
UBI
6817 YE
KI4/KI5
6817 YE
KI4
KI5
D07+ (UBI/KI4/KI5)
6817 YE
J387
KI4/KI5
6817 YE
KI4
KI5
UBI
6817 YE
UBI
6817 YE
UK3
3893 YE/BK
S70R Radio Control Switch - Steering Wheel
2
X92FSR Dual Charge Only Receptacle - Front Center Seat Rear Cover
2
3
1451 BK
X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC
8
7
1050 BK
X81FSB Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC
8
7
1050 BK
X81ACA Front Floor Console Accessory Power Rear Receptacle - 110V AC
8
7
1350 BK
G300A
X81BCA Front Floor Console Accessory Power Rear Receptacle - 220V AC
8
7
1350 BK
X92CD Dual Charge Only Receptacle - Floor Console Rear
2
3
1051 BK/WH
G200
X83B Audio/Video Receptacle
X1 2
X1 3
1051 BK/WH
G200
S70L Cruise Control Switch
2
6
6051 BK/WH
G201

Interior Lights Dimming Schematics Object-ID=6152314 (Instrument Panel Backlights)


K9
Body
Control
Module
J203
Q
6817
YE
X210
50
J205
UV6
URC
9L7
-UK3
J211
X370A
31
X213
3
X1
17
X85
Steering
Wheel
Airbag Coil
X2
13
S38
On/Off
Vehicle
Switch
S27
Head-Up
Display
Switch
S126
Ride
Control
Switch
S30
Headlamp
Switch
S171L
Instrument
Panel Center
Accessory
Function
Switch - Left
S86
Vehicle
Stability
Control
System
Switch
S171R
Instrument
Panel Center
Accessory
Function
Switch -
Right
A103
Roof
Console
S172
Auxiliary
Multifunction
Switch
S70L
Cruise
Control
Switch
851
BK/WH
1050
BK
G201
G203
G201

6150438

Interior Lights Dimming Schematics Object-ID=6152314 (Indicators)


LOC
DESC
S172 Auxiliary Multifunction Switch
AUX1
AUX2
AUX3
AUX4
AUX5
3
12
1050 BK
G203
X213
11
6816 WH
6816 WH
J206
9L7-G94
9L7+G94
G94-9L7
K9 Body Control Module
F49DR
X4
21
6816 WH
S171R Instrument Panel Center Accessory Function Switch - Right
10
4
5
7122 YE/GN
7115 YE
X211
11
10
7122 YE/GN
7115 YE
X424
2
1
7122 YE/GN
7115 YE
13
38
K38 Chassis Control Module
S70R Radio Control Switch - Steering Wheel
9
KI3
3892 VT
S70L Cruise Control Switch
9
6
6051 BK/WH
G201

6150439

Description and Operation

Exterior Lighting Systems Description and Operation

Object-ID=6262646 Owner=Quinlan, Kyle LMD=01-Feb-2023 LMB=Quinlan, Kyle

The exterior lighting system consist of the following lamps:

- Backup lamps
- Cargo lamps
- Daytime running lamps (DRL)
- Exterior courtesy lamps
- Hazard warning lamps
- Headlamps
- Park, tail, license, and marker lamps
- Front fog lamps (T3U)
- Stop lamps
- Task lamps
- Turn signal lamps
- Trailer lighting, refer to *Trailering Description and Operation on page 2-61* for more information.

Low Beam Headlamps

The headlamps may be turned ON in 3 different ways:

- When the headlamp switch is placed in the ON position, for normal operation
- When the headlamp switch is placed in the AUTO position, for automatic lamp control during low ambient light conditions
- When the headlamp switch is placed in the AUTO position, with the windshield wipers ON in daylight conditions, after a 6 second delay

The K9 Body Control Module (BCM) monitors three signal circuits from the S30 Headlamp Switch. When the headlamp switch is in the AUTO position, the three signal circuits are unaffected (open) and the BCM relies on the B10D Sun Load and Ambient Light and Security Indicator Sensor input to determine if headlamps are required or if daytime running lamps will be activated based on outside lighting conditions. When the headlamp switch is placed in the headlamp OFF position, the headlamp switch headlamps OFF signal circuit is grounded, indicating to the BCM that the exterior lamps should be turned OFF. With the headlamp switch in the PARK LAMPS position, the headlamp switch park lamps ON signal circuit is grounded, indicating that the park lamps have been requested. When the headlamp switch is in the HEADLAMP position, both the headlamp switch park lamps ON signal circuit and the headlamps ON signal circuit are grounded. The BCM responds to these inputs by sending a serial data message to the K219 Lighting Control Module. The Lighting Control Module responds by applying pulse width modulated (PWM) voltage to both headlamp low beam control circuits, illuminating the low beam headlamps. When the Lighting Control Module commands the low beam headlamps ON, the operator will notice the interior backlighting for the instrument cluster and the various other switches dim to the level of brightness selected by the instrument panel dimmer switch.

High Beam Headlamps

The high beam and flash to pass (FTP) functions are contained within the S78 Turn Signal Switch. The K9 Body Control Module (BCM) provides the turn signal/multifunction switch with two signal circuits, the high beam signal circuit and the FTP signal circuit. When the low beam headlamps are ON, and the turn signal/multifunction switch is placed in either the high beam position or FTP position, ground is applied to the BCM through the high beam/FTP signal circuit. The BCM responds to the high beam request by sending a serial data message to the K219 Lighting Control Module. The Lighting Control Module responds by applying pulse width modulated (PWM) voltage to both headlamp high beam control circuits, illuminating the high beam headlamps. The status of the high beam lamps is shown by a blue indicator located on the instrument cluster. When high beams are commanded on, the indicator will be illuminated continuously. If the driver turns the high beams off, the indicator will also turn off.

Flash to Pass

When the S78 Turn Signal Switch is momentarily placed in the flash to pass position, ground is applied to the turn signal/multifunction switch. The turn signal/multifunction switch applies ground to the K9 Body Control Module (BCM) through the flash to pass switch signal circuit. The BCM responds to the flash to pass request by sending a serial data message to the K219 Lighting Control Module. The Lighting Control Module responds by applying pulse width modulated (PWM) voltage to both headlamp high beam control circuits, illuminating the high beam headlamps. This causes the high beam headlamps to illuminate at full brightness until the turn signal/multifunction switch is returned to the at rest position.

Automatic Headlamp Control

The K9 Body Control Module (BCM) monitors three signal circuits from the S30 Headlamp Switch. When the headlamp switch is in the AUTO position, the three signal circuits are unaffected (open) and the BCM relies on the B10D Sun Load and Ambient Light and Security Indicator Sensor input to determine if headlamps are required or if daytime running lamps will be activated based on outside lighting conditions. During automatic lamp control, the headlamps will be off during daylight conditions but will turn on when the ambient light sensor detects low ambient light conditions. The ambient light sensor is a light sensitive transistor that varies the voltage signal to the BCM. The BCM provides a 5 volt reference signal and a low reference ground to the ambient light sensor. During low light conditions the BCM will request the low beam headlamps ON by sending a serial data message to the K219 Lighting Control Module. The Lighting Control Module responds by applying pulse width modulated (PWM) voltage to both headlamp low beam control circuits, illuminating the low beam headlamps.

Intellibeam – Automatic High Beam Assist (TQ5)

The IntelliBeam system is activated by pressing the auto high beam assist button on the turn signal switch while the exterior lamp control is in AUTO mode and the engine running. The AHBA system consists of a front camera module that detects light, and is able to identify approaching vehicles on an even, straight road at a distance of greater than 0.4 km (0.25 mi). The front camera module analyzes light color, intensity, and movement. The AHBA system will turn OFF the high beam headlamps when approaching vehicle headlamps or preceding vehicle taillights are detected by the front camera module. The AHBA system is turned off anytime the headlamp switch is moved out of the AUTO position.

AHBA System Activation

- Vehicle ON
- Headlamp switch placed in the AUTO position
- Outside lighting conditions must be dark
- Vehicle speed greater than 25 mph (40 km/h)

AHBA System Operation

The following are conditions that the AHBA system will turn the high beam headlamps off during operation:

- The system detects approaching traffic headlamps
- The system detects preceding traffic tail lamps
- Ambient light level too high due to towns or twilight situations
- The vehicle’s speed drops below 13 mph (22 km/h)
- Delay

Note: AHBA may not operate properly if any of the following conditions exist:

- Approaching and preceding vehicles lamps are undetectable due to dirt, snow, road spray, smoke, fog, or any other airborne conditions.
- The front camera module is covered with ice, dirt, snow, haze, or is obstructed.
- The vehicle is being driven on winding or hilly road conditions which would make any on coming vehicle headlamps undetectable by the AHBA.

AHBA System Deactivation

- Manually operating the headlamp switch from neutral to high beam position
- AHBA is deactivated automatically when the front or rear fog lamps are turned ON

AHBA System Indicator

The status of the AHBA system is shown by a green indicator located on the instrument panel cluster. When AHBA is active, the indicator will be illuminated continuously. If the operator deactivates the AHBA system, the indicator will turn off.

Daytime Running Lamps

The daytime running lamps (DRL) will illuminate continuously when the following conditions are met:

- Engine running
- The headlamp switch is in the AUTO position
- Ambient light conditions are daytime conditions

The B10D Sun Load and Ambient Light and Security Indicator Sensor is used to monitor outside lighting conditions. The ambient light sensor provides a voltage signal that will vary between 0.2 and 4.9 volts depending on outside lighting conditions. The K9 Body Control Module (BCM) provides a 5 volt reference signal and a low reference ground to the ambient light sensor. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either daytime running lamps (DRL) or automatic lamp control when the headlamp switch is in the AUTO position. In daylight conditions the BCM will send a serial data message to the K219 Lighting Control Module to command the DRLs ON, the Lighting Control Module responds by applying pulse width modulated (PWM) voltage to both DRL control circuits, illuminating the DRLs. During low light conditions the Lighting Control Module will command the low beam headlamps ON.

Hazard Lamps

The hazard flashers may be activated in any power mode. The Hazard Warning Switch signal circuit is momentarily grounded when the hazard switch is pressed. The K9 Body Control Module (BCM) responds to the hazard switch signal input by sending a serial data message to the K219 Lighting Control Module. The Lighting Control Module responds by supplying battery voltage to all turn signal lamps in an ON and OFF duty cycle. When the hazard switch is activated, the BCM also sends a serial data message to the instrument cluster requesting both turn signal indicators to be cycled ON and OFF.

Park, Tail, and License Lamps

When the S30 Headlamp Switch is placed in the HEAD or PARK position, ground is applied to the park lamp switch ON signal circuit to the K9 Body Control Module (BCM). The BCM responds to the park lamp switch signal input by sending a serial data message to the K219 Lighting Control Module. The Lighting Control Module responds by applying battery voltage to the park lamps, tail lamps, and license lamps control circuits illuminating the park, tail, and license lamps.

Stop Lamps

The B22 Brake Pedal Position Sensor is used to sense the action of the driver application of the brake pedal. The K9 Body Control Module (BCM) provides the brake pedal position sensor with low reference, signal, and 5 volt reference circuits. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM will respond by sending a serial data message to the K219 Lighting Control Module requesting the stop lamps to be turned ON. The Lighting Control Module responds by applying battery voltage to the left and right stop lamp control circuits as well as the center high mounted stop lamp control circuit illuminating the left and right stop lamps and the center high mounted stop lamp. If serial data communication is lost between the BCM and the Lighting Control Module, the Lighting Control Module will receive a serial data message from the Electronic Brake Control Module indicating that the brakes have been applied. If serial data communication is lost between all three modules, the Lighting Control Module also receives a hard wired voltage signal from the BCM to signal the brake lamps ON.

Turn Signal Lamps

Turn Signals

The K9 Body Control Module (BCM) provides the S78 Turn Signal Switch with left and right turn signal switch signal circuits. Ground is applied at all times to the turn signal/multifunction switch. The turn signal lamps may only be activated with the ignition switch in the ON or START positions. When the turn signal/ multifunction switch is placed in either the turn right or turn left position, ground is applied to the BCM through either the right turn or left turn signal switch signal circuit. The BCM responds to the turn signal switch input by sending a serial data message to the K219 Lighting Control Module. The Lighting Control Module responds by applying a pulsating voltage to the turn signal lamps through there respective control circuits. When a turn signal request is received by the BCM, a serial data message is also sent to the instrument cluster requesting the respective turn signal indicator be pulsed ON and OFF.

Turn Signal Outage Detection

Vehicles with LED turn signals require additional turn signal outage detection circuits that provide turn signal feedback to the K219 Lighting Control Module. The Lighting Control Module uses the feedback information to send a serial data message to the instrument cluster to alert the driver anytime a turn signal fault is detected. If a fault is detected on a turn signal circuit or a turn signal feedback circuit, the turn signals will flash in a rapid manner to alert the driver of the fault.

Turn Signal Animation

When the K219 Lighting Control Module receives a serial data message from the K9 Body Control Module (BCM) that the turn signals are being commanded on, the lighting control module responds by applying a pulsating voltage to the front, mirror, and rear turn signal lamps through their respective control circuits. The left and right turn signal control circuits are connected to each front and rear lamp assemblies, this is for animation purposes. When a lamp assembly only receives one turn signal input, an animation effect takes place as a “swiping” motion for the turn signals. When a lamp assembly receives both turn signal inputs as part of the hazard lamps becoming active, the turn signals do not exhibit the animation effect and will flash without the “swiping” motion.

Backup Lamps

With the engine running and the transmission in the reverse position, the transmission control module (TCM) sends a serial data message to the multiple control modules. The message indicates that the gear selector is in the reverse position. The K9 Body Control Module (BCM) responds to the reverse position message by sending a serial data message to the K219 Lighting Control Module to request the backup lamps on. The Lighting Control Module responds by applying battery voltage to the backup lamps control circuit(s) illuminating the backup lamps. The applied voltage is also sent to the A11 Radio and A10 Inside Rearview Mirror for rearview camera purposes. Once the driver moves the gear selector out of the reverse position, a serial data message is sent by the TCM that the transmission is no longer in the reverse position. The BCM responds to the reverse position message by sending a serial data message to the Lighting Control Module to request the backup lamps off. The Lighting Control Module responds by removing battery voltage from the backup lamp circuits. The engine must be running for the backup lamps to operate.

Cargo Lamps

Cargo Lamps

When the K9 Body Control Module (BCM) receives a task lamp switch input from the S30 Headlaamp Switch, the BCM responds by sending a serial data message to the K219 Lighting Control Module. The lighting control module responds by applying pulse width modulated (PWM) voltage to the cargo lamp control circuits illuminating the cargo lamps. In the event that the cargo lamps were to remain illuminated for more than 10 minutes with the ignition switch in the OFF position, the lighting control module will deactivate the cargo lamp control circuits to prevent total battery discharge.

Task Lamps

When the K9 Body Control Module (BCM) receives a task lamp switch input from the S30 Headlaamp Switch, the BCM responds by sending a serial data message to the K219 Lighting Control Module. The lighting control module responds by applying pulse width modulated (PWM) voltage to the task lamp control circuits illuminating the task lamps in each outside rearview mirror assembly. When the task lamp switch is pressed a second time, the left task lamp control circuit will stay illuminated while the right side will be turned off. When the task lamp switch is pressed a third time, the left task lamp control circuit will be turned off while the right side will be turned back on. When the task lamp switch is pressed a fourth time, both task lamps will be turned off. In the event that the task lamps were to remain illuminated for more than 10 minutes with the ignition switch in the OFF position, the lighting control module will deactivate the cargo lamp control circuit to prevent total battery discharge.

Approach Lighting

Approach lighting is commanded ON when the unlock button is pressed on the keyless entry transmitter during dark ambient light conditions. When the keyless entry transmitter unlock button is pressed, a serial data message is sent by the K9 Body Control Module (BCM) that the vehicle is being unlocked. The K219 Lighting Control Module responds to the serial data message by applying voltage to the approach lamp control circuit illuminating the LED lighting located under each outside rearview mirror as part of approach lighting.

Battery Run Down Protection/ Inadvertent Power

To provide battery run down protection, the exterior lamps will be deactivated automatically under certain conditions. The K9 Body Control Module (BCM) monitors the state of the S30 Headlamp Switch. If the headlamp switch is in the park or headlamp position when the ignition switch is ON and then the ignition switch is placed in the OFF position, the BCM initiates a 10 minutes timer. At the end of the 10 minutes, the BCM will send a serial data message to the K219 Lighting

Control Module to deactivate the exterior lamps to prevent total battery discharge. This feature will be cancelled if any power mode other than OFF becomes active.

The BCM will disable battery run down protection if any of the following conditions exist:

- The park or headlamp switch is changed from the ON to OFF position, and back to the ON position during battery run down protection.
- The BCM determined that the park or headlamp switch was not active when the ignition was turned OFF.

Interior Lighting Systems Description and Operation

Object-ID=5921555 Owner=Quinlan, Kyle LMD=18-Jan-2023 LMB=Quinlan, Kyle

Interior Lamps

Dome Lamps

The dome lamps are controlled by door ajar inputs to the K9 Body Control Module (BCM). When any door is opened, the door ajar switch contacts close and the BCM receives a door-open input. The BCM responds by sending a serial data message to the A103 Roof Console. The Roof Console responds by applying battery voltage to the dome lamps illuminating the dome lamps. The BCM will also send a serial data message to request the dome lamps on when a door lock/unlock request is activated with the key fob. After all doors have been closed, the dome lamp will remain illuminated approximately 3 seconds after the last door closes. In the event that the dome lamp were to remain illuminated for more than 10 minutes with the ignition switch in the OFF position, the BCM will deactivate the dome lamp control circuit to prevent total battery discharge. The dome lamps will turn OFF using the theater dimming feature when controlled by the BCM.

Center Console Compartment Lamp

The K9 Body Control Module (BCM) supplies battery voltage to the center console lamp through control circuit 4786 anytime the ignition/vehicle is turned on or the dome lamps are requested on through the dome lamp control switch on the A103 Roof Console. In the event that the center console lamp were to remain illuminated for more than 10 minutes with the ignition/vehicle off, the BCM will deactivate the courtesy lamp control circuit to prevent total battery discharge.

Keyless Entry Interior Illumination

When the operator uses the keyless entry transmitter in order to unlock the doors, the K9 Body Control Module (BCM) receives a door-unlock signal. The BCM must receive inputs from various systems that indicate that the ignition switch is OFF, the courtesy lamp switch is OFF, and all doors are closed before the BCM will activate the interior lamps. After all doors have been closed, the courtesy lamps will turn OFF immediately if the ignition switch is turned to the ON position, the door locks are LOCKED, or approximately 20 seconds after the last door closes. The BCM will turn off the courtesy lamps through the theater dimming feature. The BCM keeps the courtesy lamps on for 40 seconds after an alarm event is completed.

Reading Lamps

When a reading lamp button is pressed, the switch contacts close providing a path to ground for the signal circuit from the A103 Roof Console. The roof console responds by applying battery voltage to the appropriate reading lamp control circuit illuminating the reading lamp. If the operator inadvertently leaves a reading lamp ON, the BCM will send a serial data message to turn all interior lighting off after 10 minutes has passed to prevent total battery discharge.

Sunshade Mirror Lamp

The inadvertent power supply voltage circuit from the K9 Body Control Module (BCM) provides battery voltage to the passenger side sunshade mirror lamp. When the sunshade mirror cover is opened, a switch closes providing ground and the sunshade lamp illuminates. If the operator inadvertently leaves the sunshade mirror cover open with the lamp ON, the BCM will turn all interior lamps OFF after 10 minutes has passed to prevent total battery discharge.

Interior Lamps Dimming

With the S30 Headlamp Switch in the PARK or HEAD position, the park lamp switch signal circuit provides an input to the K9 Body Control Module (BCM). The BCM responds by applying voltage to the backlight dimming control circuits illuminating all components with interior backlighting. All interior backlighting turns on at the dimming level set by the dimmer buttons within the headlamp switch. The headlamp switch is used to increase and decrease the brightness of the interior backlighting components. The BCM provides a signal circuit and a low reference circuit to the headlamp switch for backlight dimming. When a dimming button is pressed, the signal circuit becomes grounded through the appropriate resistor internal to the headlight switch and voltage from the BCM will decrease accordingly. The BCM interprets the signal and responds in two ways. The BCM applies a pulse width modulated (PWM) voltage through the LED dimming control circuits illuminating the interior backlighting to the requested level of brightness. The BCM also sends a serial data message to the appropriate control modules requesting all dimming components to be illuminated to the same level of brightness.

Battery Rundown Protection/ Inadvertent Power

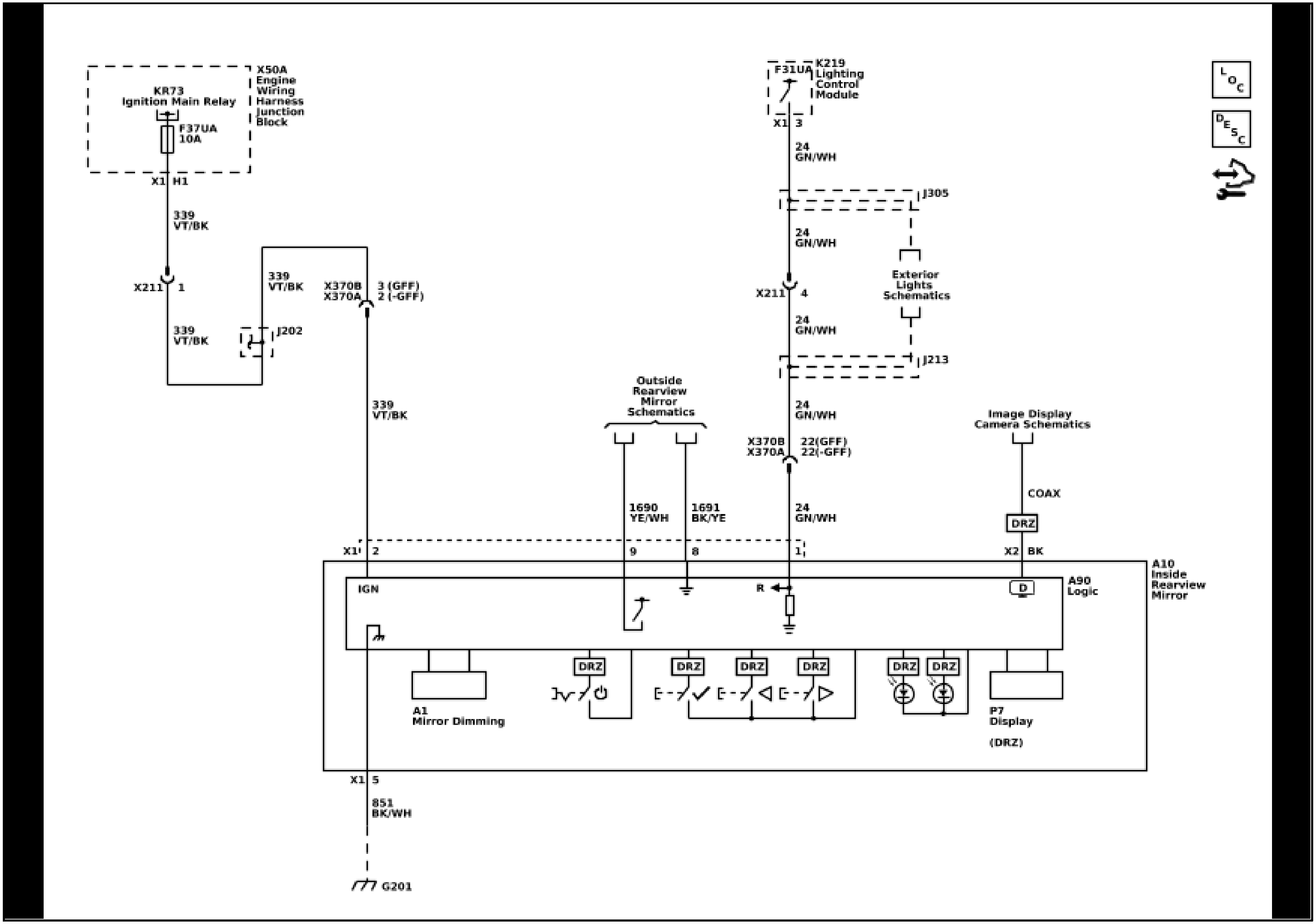
The K9 Body Control Module (BCM) inadvertent power supply voltage circuit provides battery voltage to all of the interior courtesy lamps. In the event that any of these lamps were to remain illuminated for a period of more than 10 minutes with the ignition switch in the OFF position, the BCM will deactivate the inadvertent power supply voltage circuit to prevent total battery discharge. If the ignition switch is turned to any position other than OFF, or if a lamp switch is activated during this 10 minute period, the timer resets for another 10 minutes.

Body Systems

Mirrors

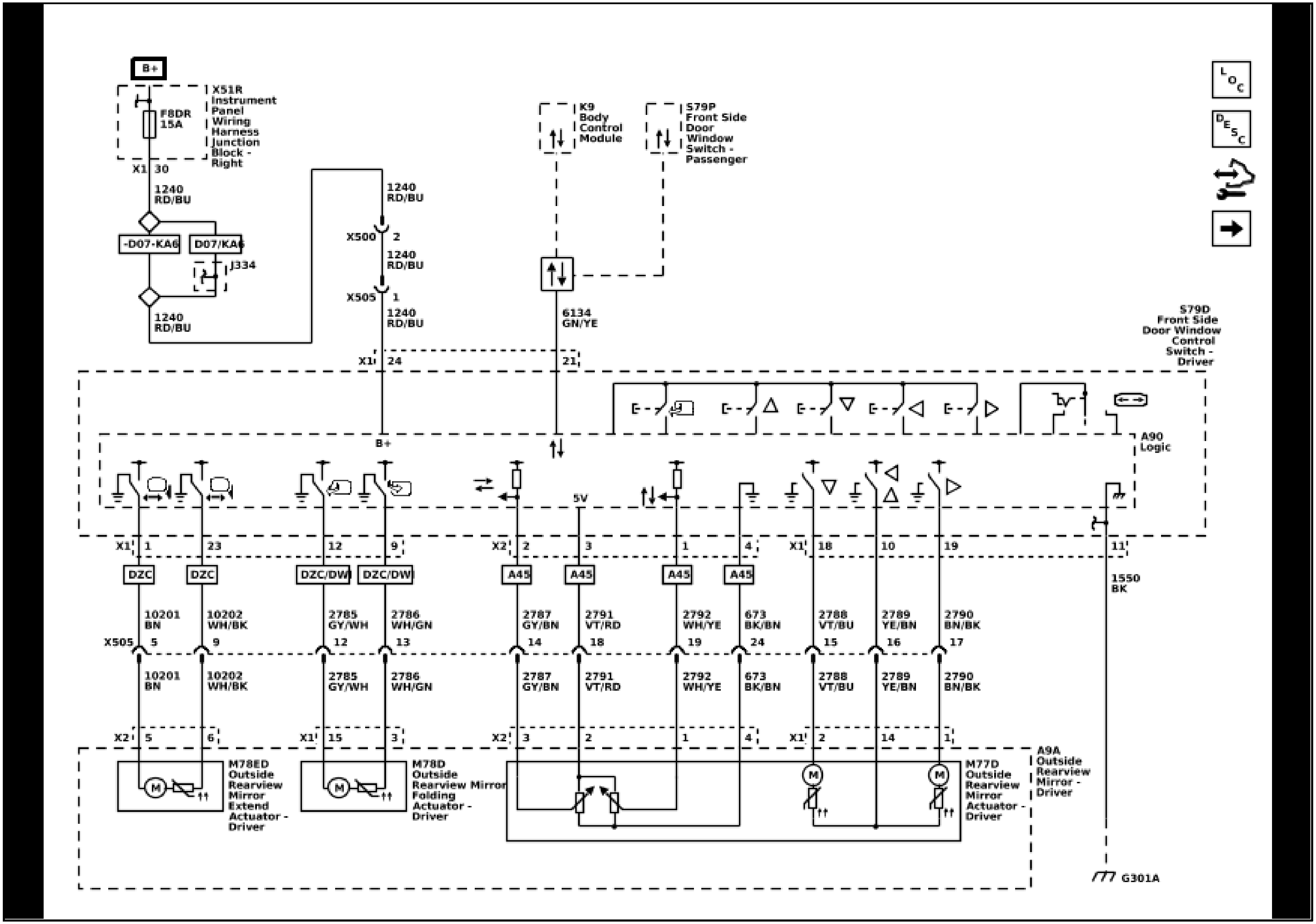
Schematic and Routing Diagrams

Inside Rearview Mirror Schematics Object-ID=6152315 (Inside Rearview Mirror (DD8/DRZ))


X50A Engine Wiring Harness Junction Block
KR73 Ignition Main Relay
F37UA 10A
X1 H1
339 VT/BK
X211 1
339 VT/BK
339 VT/BK
J202
X370B X370A
3 (GFF) 2 (-GFF)
339 VT/BK
X1 2
IGN
A1 Mirror Dimming
X1 5
851 BK/WH
G201
Outside Rearview Mirror Schematics
1690 YE/WH
1691 BK/YE
9
8
F31UA
K219 Lighting Control Module
X1 3
24 GN/WH
J305
24 GN/WH
X211 4
Exterior Lights Schematics
24 GN/WH
J213
24 GN/WH
X370B X370A
22(GFF) 22(-GFF)
24 GN/WH
1
R
Image Display Camera Schematics
COAX
DRZ
X2 BK
D
A90 Logic
A10 Inside Rearview Mirror
DRZ
DRZ
DRZ
DRZ
DRZ
DRZ
P7 Display
(DRZ)

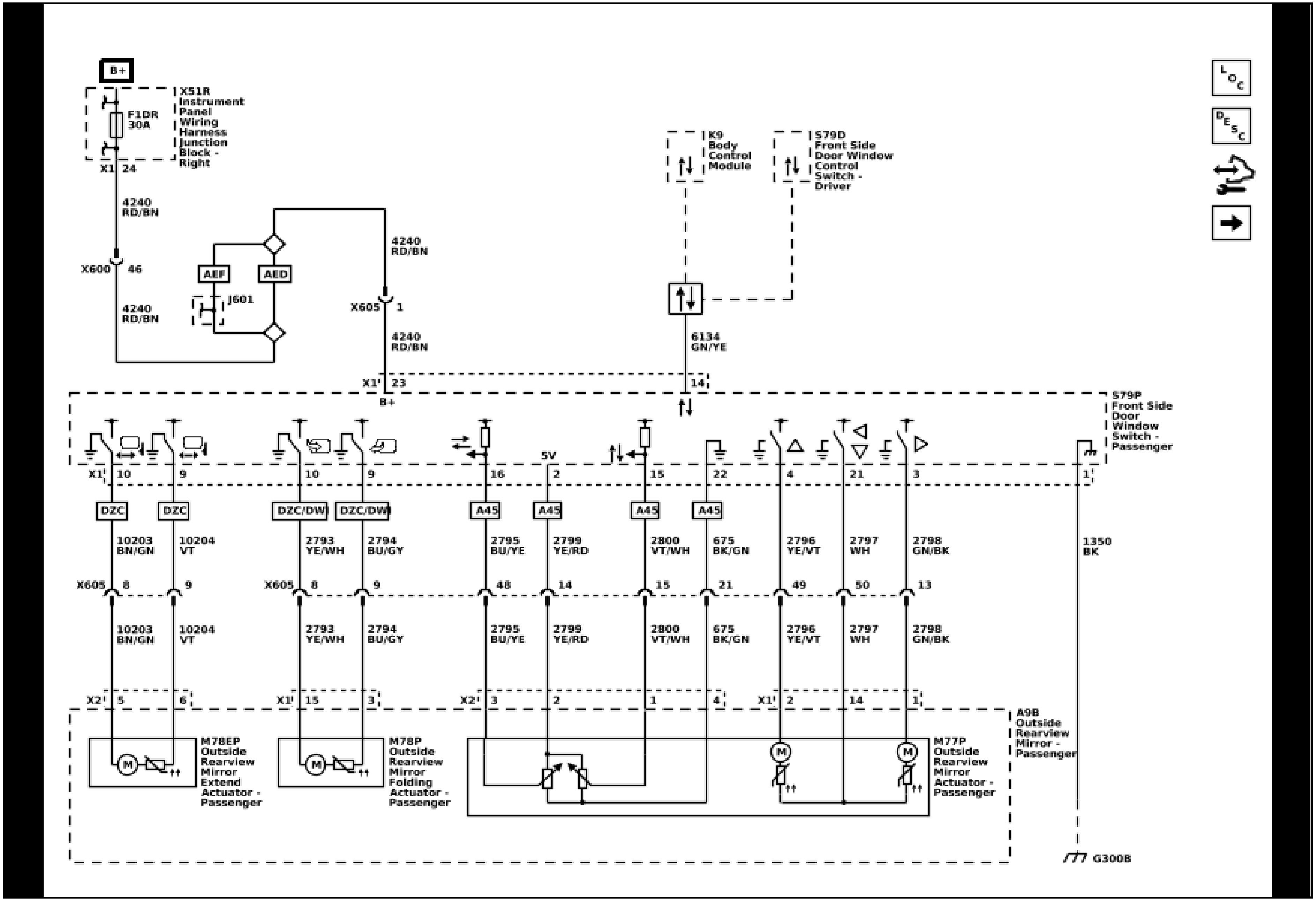
6150440

Outside Rearview Mirror Schematics Object-ID=6152317 (Driver Controls, Position, and Folding (A45))


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F8DR 15A
X1 30
1240 RD/BU
-D07-KA6
D07/KA6
J334
X500 2
X505 1
K9 Body Control Module
S79P Front Side Door Window Switch - Passenger
6134 GN/YE
X1 24
21
S79D Front Side Door Window Control Switch - Driver
A90 Logic
B+
5V
X1 1
23
12
9
X2 2
3
1
4
X1 18
10
19
11
DZC
DZC/DW
A45
1550 BK
10201 BN
10202 WH/BK
2785 GY/WH
2786 WH/GN
2787 GY/BN
2791 VT/RD
2792 WH/YE
673 BK/BN
2788 VT/BU
2789 YE/BN
2790 BN/BK
X505 5
9
12
13
14
18
19
24
15
16
17
X2 5
6
X1 15
3
X2 3
2
1
4
X1 2
14
1
M78ED Outside Rearview Mirror Extend Actuator - Driver
M78D Outside Rearview Mirror Folding Actuator - Driver
M77D Outside Rearview Mirror Actuator - Driver
A9A Outside Rearview Mirror - Driver
M
G301A

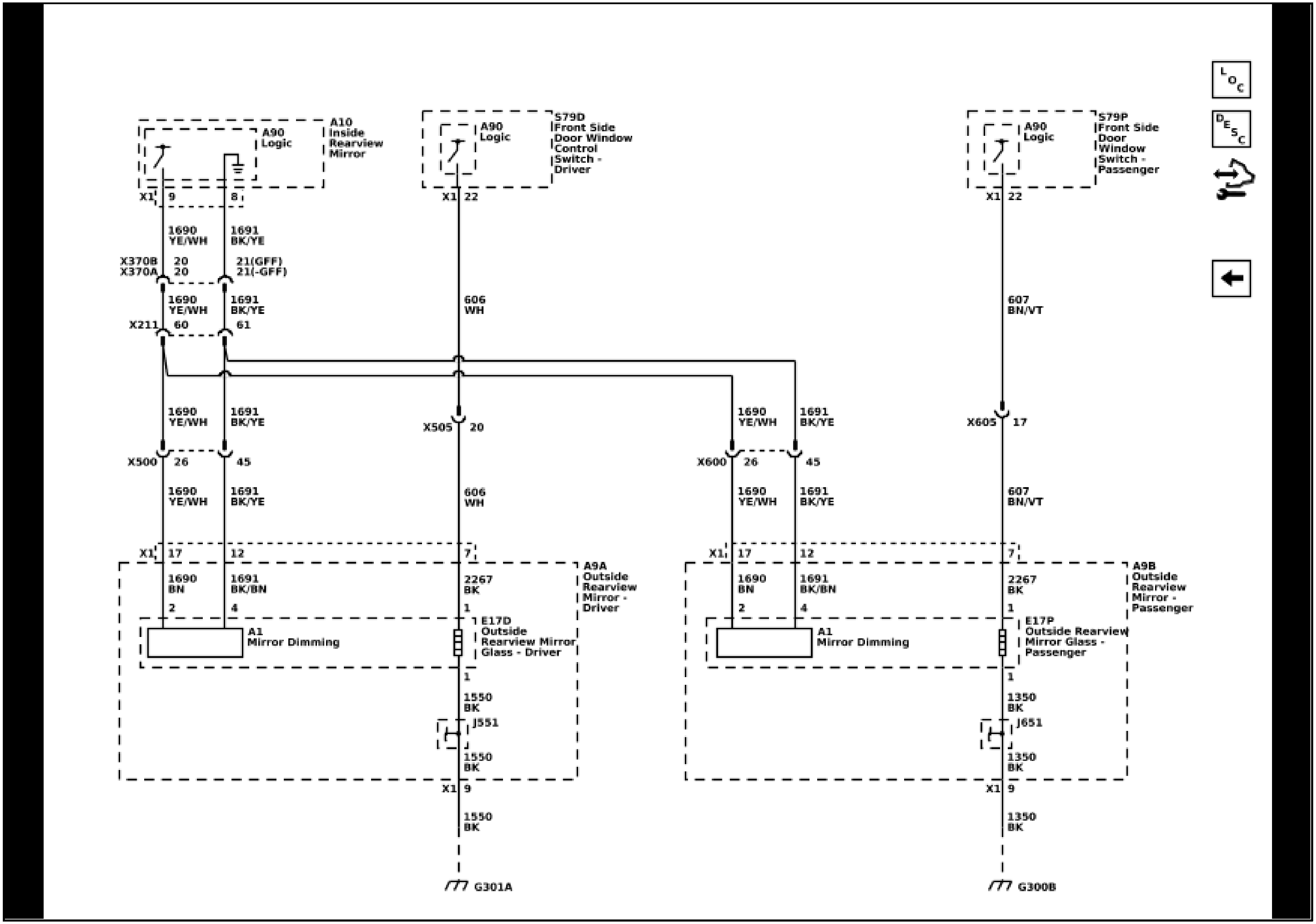
6150441

Outside Rearview Mirror Schematics Object-ID=6152317 (Passenger Controls, Position, and Folding (DZC))


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F1DR 30A
X1 24
4240 RD/BN
X600 46
4240 RD/BN
AEF
AED
J601
4240 RD/BN
X605 1
4240 RD/BN
X1 23
B+
K9 Body Control Module
S79D Front Side Door Window Control Switch - Driver
6134 GN/YE
14
S79P Front Side Door Window Switch - Passenger
5V
X1 10
9
10
9
16
2
15
22
4
21
3
1
DZC
DZC
DZC/DW
DZC/DW
A45
A45
A45
A45
10203 BN/GN
10204 VT
2793 YE/WH
2794 BU/GY
2795 BU/YE
2799 YE/RD
2800 VT/WH
675 BK/GN
2796 YE/VT
2797 WH
2798 GN/BK
1350 BK
X605 8
9
X605 8
9
48
14
15
21
49
50
13
X2 5
6
X1 15
3
X2 3
2
1
4
X1 2
14
1
M78EP Outside Rearview Mirror Extend Actuator - Passenger
M78P Outside Rearview Mirror Folding Actuator - Passenger
M77P Outside Rearview Mirror Actuator - Passenger
A9B Outside Rearview Mirror - Passenger
G300B
M
M
M
M

6150442

Outside Rearview Mirror Schematics Object-ID=6152317 (Dimming and Heating (A45))


A10
Inside Rearview Mirror
A90 Logic
X1 9
8
1690 YE/WH
1691 BK/YE
X370B 20
X370A 20
21(GFF)
21(-GFF)
X211 60
61
1690 YE/WH
1691 BK/YE
X500 26
45
S79D
Front Side Door Window Control Switch - Driver
A90 Logic
X1 22
606 WH
X505 20
S79P
Front Side Door Window Switch - Passenger
A90 Logic
X1 22
607 BN/VT
X605 17
X600 26
45
1690 YE/WH
1691 BK/YE
X1 17
12
7
1690 BN
1691 BK/BN
2267 BK
2
4
1
A9A
Outside Rearview Mirror - Driver
A1
Mirror Dimming
E17D
Outside Rearview Mirror Glass - Driver
1550 BK
J551
X1 9
G301A
A9B
Outside Rearview Mirror - Passenger
E17P
Outside Rearview Mirror Glass - Passenger
1350 BK
J651
G300B
L O C
D E S C

6150443

Description and Operation

Automatic Day-Night Mirror Description and Operation

Object-ID=4433282 Owner=Westfall, Jason LMD=31-Oct-2017 LMB=Westfall, Jason

Inside Rearview Mirror with the Automatic Day-Night Feature System Operation

The inside rearview mirror uses 2 photocell sensors. One sensor is the headlight sensor, located on the face side of the mirror. The headlight sensor is used to determine light conditions present at the mirror face. The other sensor is the ambient light sensor, located on the rear of the mirror or windshield side. The ambient light sensor is used to determine the exterior light conditions. With a low exterior light condition detected, and a high light condition from behind the car, at the headlight sensor, the inside rearview mirror will automatically darken the face of the mirror.

In the daytime, the mirror is in a normal state because of the high exterior light condition that is indicated by the ambient light sensor. With the gear selector lever in the REVERSE position and the Ignition ON/Vehicle in Service Mode, backup lamp supply voltage is supplied as an input to the inside rearview mirror. The mirror monitors this input to disable the automatic day-night feature. This allows the driver to see objects in the mirror clearly when backing up, even during the night.

Driver Outside Rearview Mirror with Automatic Day-Night System Operation (If Equipped)

The automatic day-night feature of the driver outside rearview mirror is controlled by the inside rearview mirror. The inside rearview mirror supplies control and low reference to the driver outside rearview mirror. At night, with the automatic day-night feature enabled, the driver outside rearview mirror will automatically darken with the inside rearview mirror to reduce glare from headlamps behind the vehicle.

Inside Rearview Camera Full Display Mirror System Operation

The inside rearview camera full display mirror is connected to the outside rearview camera via a shielded coaxial cable. When the tab under the inside rearview mirror is pulled rearward, a view of the area behind the vehicle displays on the mirror. Adjust the rearview mirror for a clear view of the area behind the vehicle before turning on full display mirror. Use the button on the back of the mirror to adjust the brightness of the display. Make sure the light sensor is not covered when adjusting the brightness.

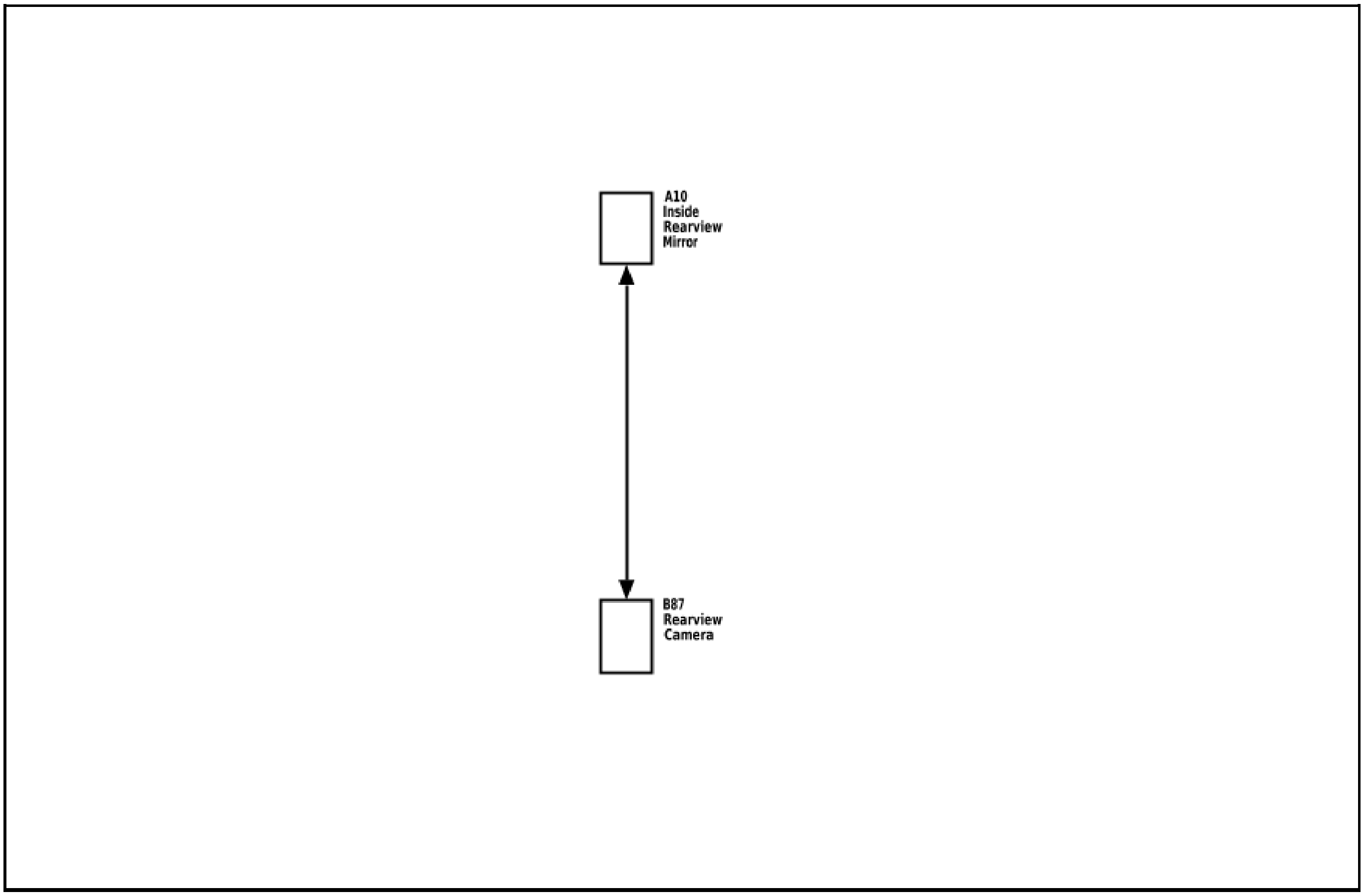
The inside rearview camera full display mirror may not work properly or display a clear image if:.

- It is dark.
- The sun or the beam of headlamps are shining directly into the camera lens.
- Ice, snow, mud, or anything else builds up on the camera lens. Clean the lens, rinse it with water, and wipe it with a soft cloth.

When the mirror detects that the camera is not sending a valid video signal, it “blue screens” with a “no video” decal for 3 seconds, then reverts back to the mirror. Meanwhile, if a blue screen keeps on displaying instead of the camera view, take the vehicle to your dealer for service.

Rearview Camera Full Display Mirror Block Diagram

SIO-ID=4433079 LMD=07-Mar-2016



4433072

Outside Mirror Description and Operation

Object-ID=5417346 Owner=Westfall, Jason LMD=26-Oct-2022 LMB=Westfall, Jason

Power Mirror System Components

The power mirror system consists of the following components:

- Body Control Module
- Driver Seat Adjuster Memory Module
- Outside Mirror Switch
- Passenger Window Switch
- Left Outside Rearview Mirror
- Right Outside Rearview Mirror

Power Mirror System Controls

The outside rearview mirror switch is part of the S79D Driver Front Side Door Window Control Switch and uses serial data to control the passenger mirror through the S79P Passenger Front Side Door Window Control Switch. Each S79 Side Door Window Control Switch has it own 12V, ground and data communications circuit along with mirror directional control and mirror fold circuits.

Driver Mirror Controls

The S79D Driver Front Side Door Window Control Switch has internal connections for the driver mirror. When the mirror position switch is active the driver mirror is commanded to move through bi-directional motor control circuits. The motor control circuits are floating while in an inactive state and the switches will apply power and ground to the control circuits as necessary to move the mirror in the commanded direction.

Passenger Mirror Controls

The S79D Driver Front Side Door Window Control Switch uses serial data circuits to communicate the active states for the passenger mirror switch to the S79P Passenger Front Side Door Window Control Switch. The S79P Passenger Front Side Door Window Control Switch has internal connections for the passenger mirror. When the mirror position switch is active the passenger mirror is commanded to move through bi-directional motor control circuits. The motor control circuits are floating while in an inactive state and the switches will apply power and ground to the control circuits as necessary to move the mirror in the commanded direction.

Mirror Position

Mirror position is determined by both horizontal and vertical position sensors in each of the power mirrors. Each S79 Front Side Door Window Control Switch supplies a 5 V reference, low reference, and horizontal and vertical position signal circuits to these sensors. The signal circuits are referenced from 5 V by the S79 Front Side Door Window Control Switch and the signal circuit voltage levels represent the mirror positions. The mirror positions are stored in each S79 Front Side Door Window Control Switch for memory mirror operation. When the memory seat module receives a memory recall command, the memory seat control module will send the go to position to the S79 Front Side Door Window Control Switch. The S79 Front Side Door Window Control Switches will then drive the appropriate mirror motors to the commanded position sensor settings.

Mirror Select

The S79D Driver Front Side Door Window Control Switch has internal connections for the mirror select switch. When the mirror select switch is active the S79 Front Side Door Window Control Switch will either control the driver mirror or send a serial data message to control the passenger mirror.

Folding Mirrors

The S79D Driver Front Side Door Window Control Switch sends the mirror fold/unfold inputs to the K9 Body Control Module (BCM) through serial data. When the BCM receives a fold/unfold signal it will send a fold/unfold command to the S79 Driver Front Side Door Window Control Switch which will send a serial data message to the S79P Passenger Front Side Door Window Control Switch. The outside mirrors will fold or unfold depending on their current state. The BCM will also send a serial data message to unfold the mirrors when the vehicle reaches 20 km/h (12 mph). The S79 Front Side Door Window Control Switches control the fold/unfold motors through bi-directional control circuits

Heated Mirrors

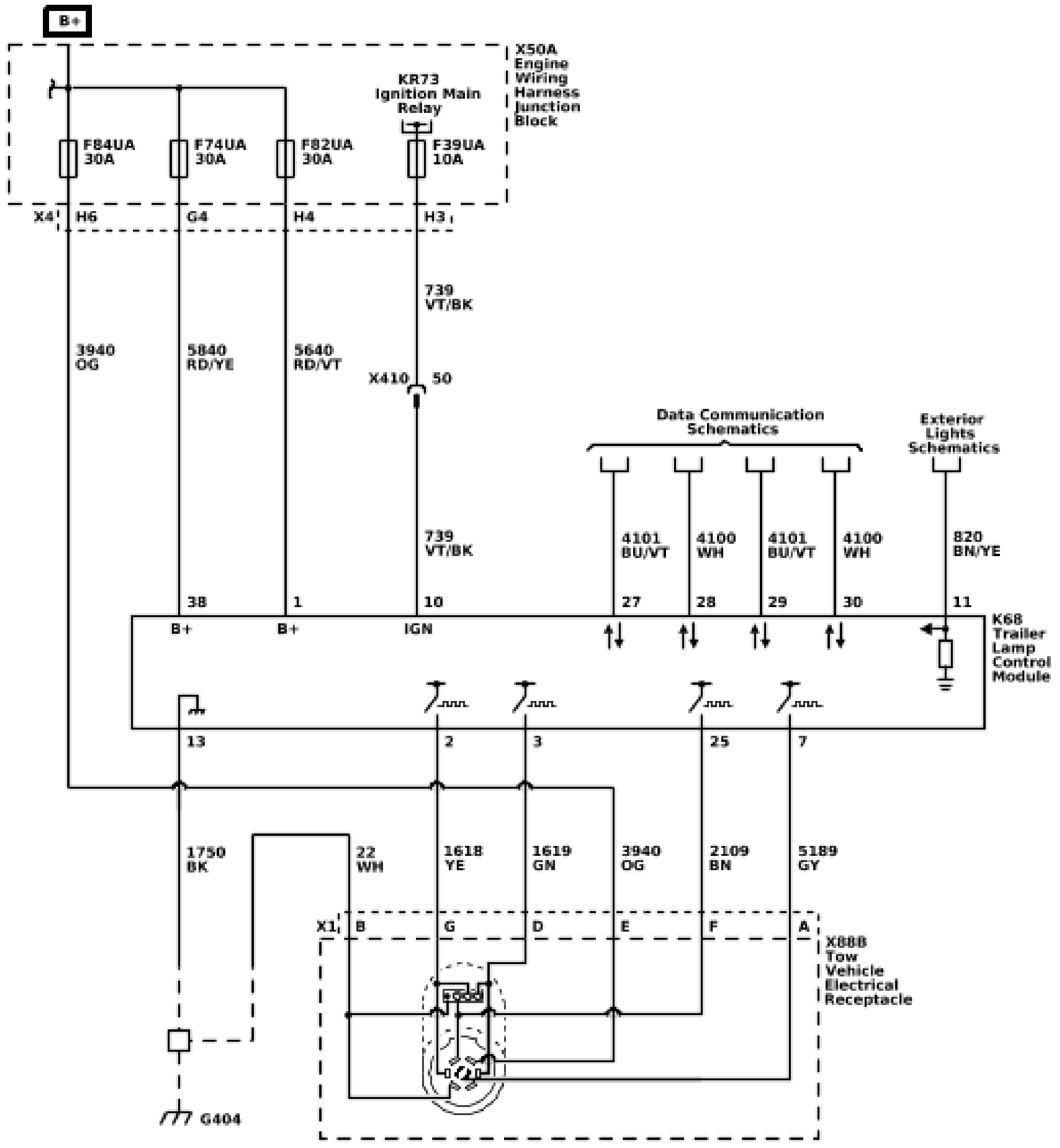
The heated mirrors are controlled through each S79 Front Side Door Window Control Switch. When the vehicle is running and the HVAC control module receives a rear window defog request from the radio/ HVAC controls, the HVAC control module will send a serial data message to the S79D Driver Front Side Door Window Control Switch and S79P Passenger Front Side Door Window Control Switch. Each S79 Front Side Door Window Control Switch provide B + voltage to the driver and passenger outside rearview mirror heating elements.

Body Systems

Trailering Systems

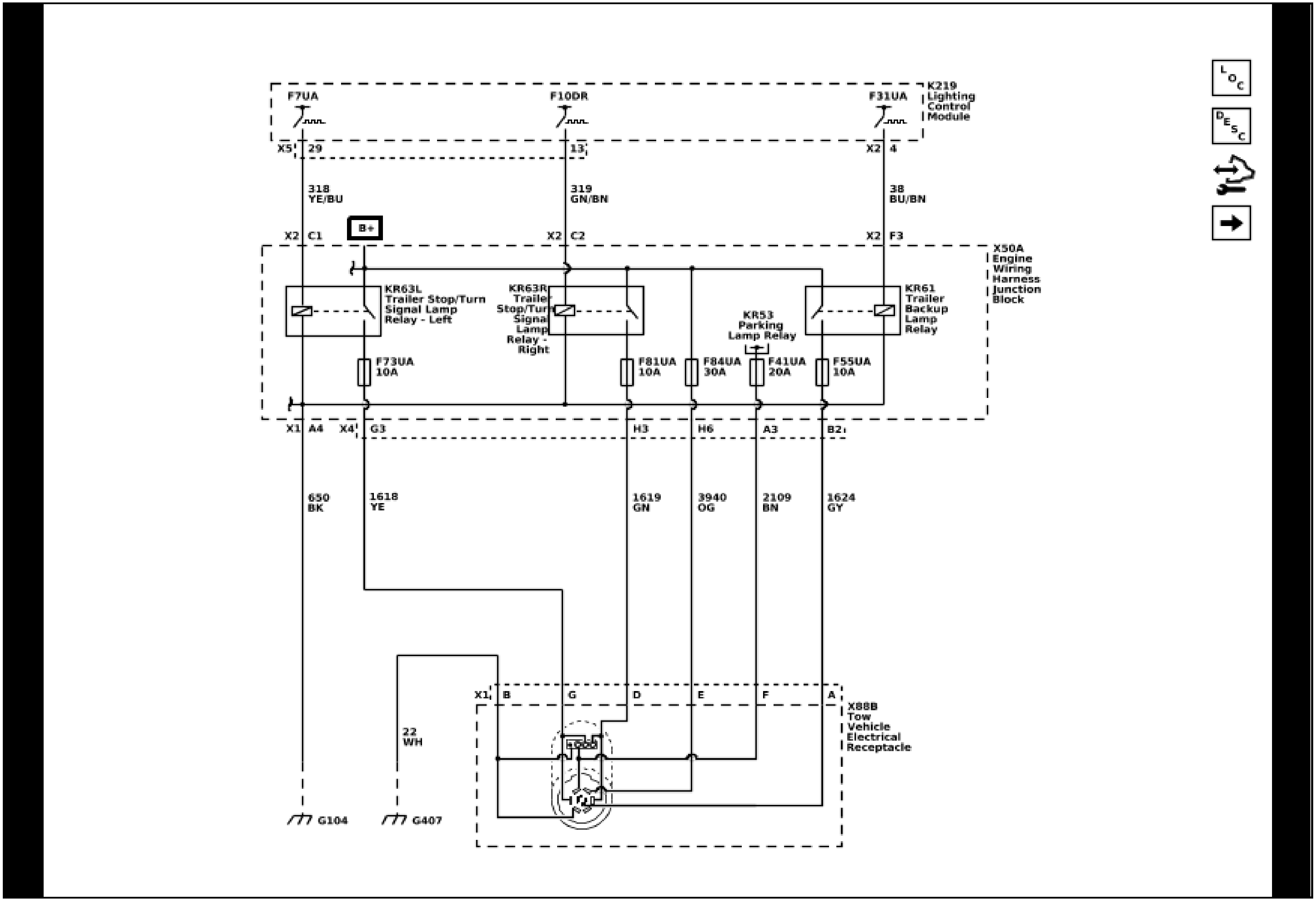
Schematic and Routing Diagrams

Trailering Systems Schematics Object-ID=6152404 (Trailer Lighting Control Module (Z82&UET-(UY2/Z6A)))


B+
X50A
Engine
Wiring
Harness
Junction
Block
KR73
Ignition Main
Relay
F84UA
30A
F74UA
30A
F82UA
30A
F39UA
10A
X4
H6
G4
H4
H3
739
VT/BK
3940
OG
5840
RD/YE
5640
RD/VT
X410
50
Data Communication
Schematics
Exterior
Lights
Schematics
739
VT/BK
4101
BU/VT
4100
WH
4101
BU/VT
4100
WH
820
BN/YE
38
1
10
27
28
29
30
11
B+
B+
IGN
K68
Trailer
Lamp
Control
Module
13
2
3
25
7
1750
BK
22
WH
1618
YE
1619
GN
3940
OG
2109
BN
5189
GY
X1
B
G
D
E
F
A
X888
Tow
Vehicle
Electrical
Receptacle
G404

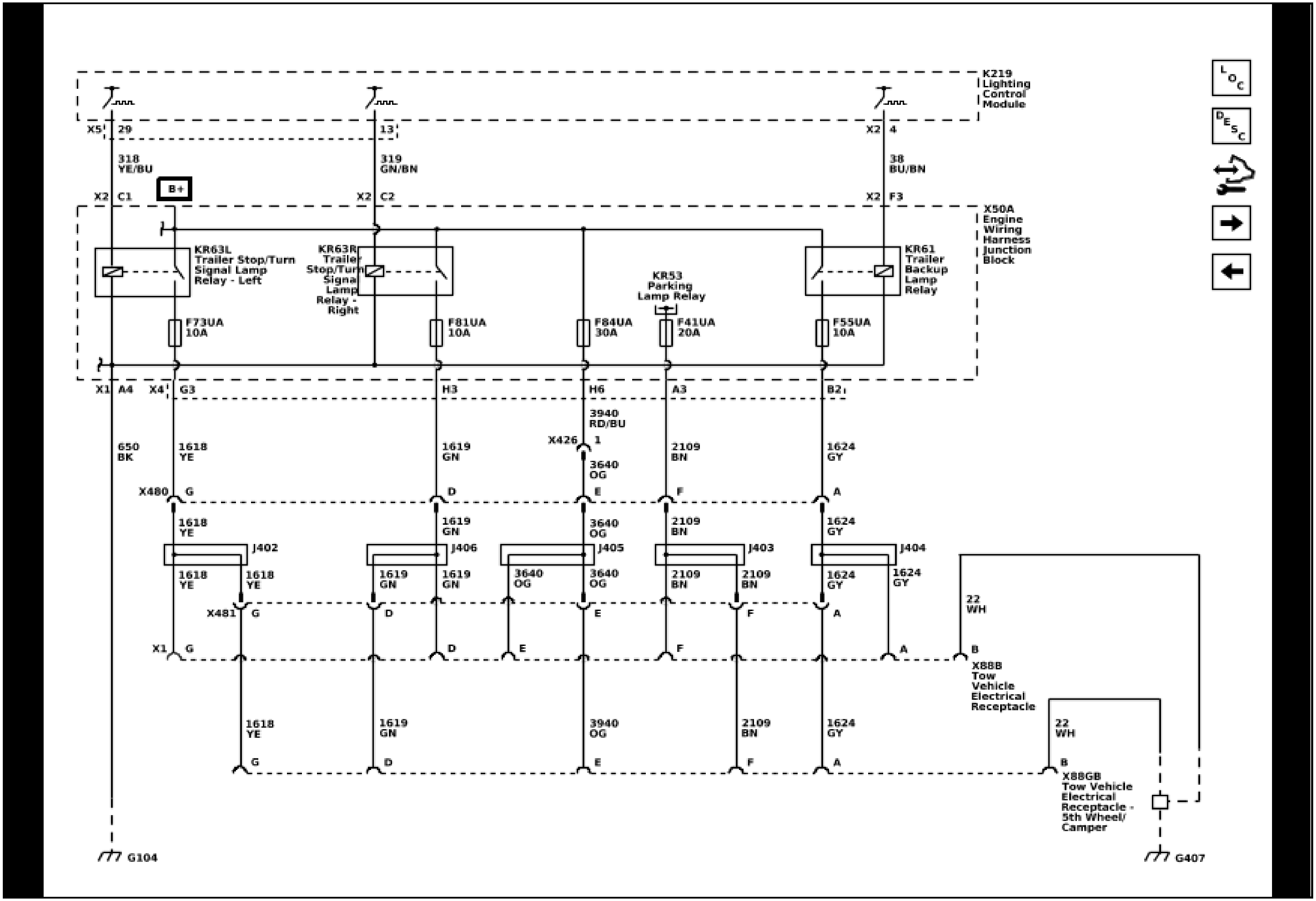
6150629

Trailering Systems Schematics Object-ID=6152404 (Trailer Connector Pins: A, B, D, E, F, G (Z82-(UET/UY2/Z6A)))

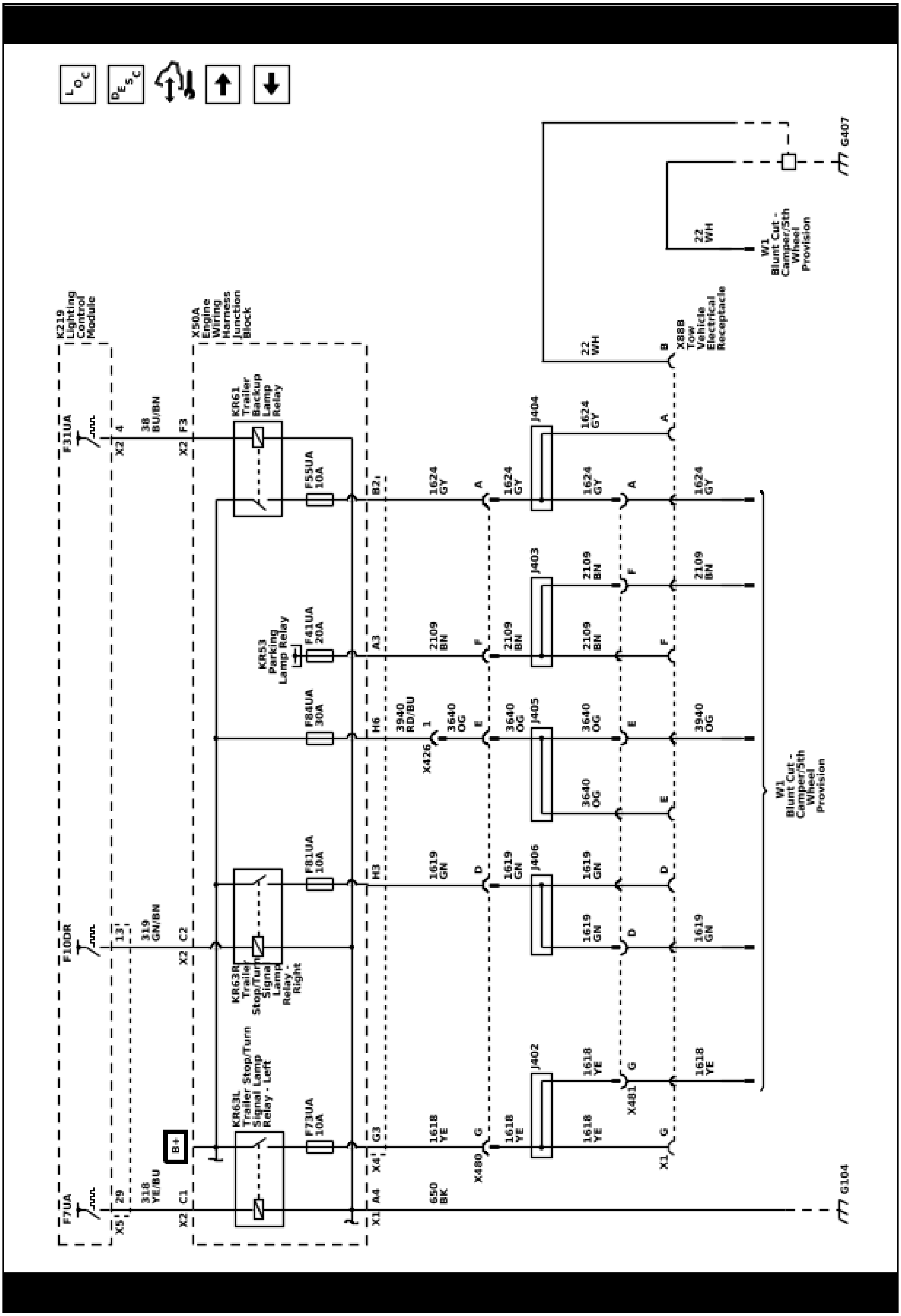

F7UA
F10DR
F31UA
K219 Lighting Control Module
X5 29
13
X2 4
318 YE/BU
319 GN/BN
38 BU/BN
B+
X2 C1
X2 C2
X2 F3
X50A Engine Wiring Harness Junction Block
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
KR53 Parking Lamp Relay
KR61 Trailer Backup Lamp Relay
F73UA 10A
F81UA 10A
F84UA 30A
F41UA 20A
F55UA 10A
X1 A4
X4 G3
H3
H6
A3
B2
650 BK
1618 YE
1619 GN
3940 OG
2109 BN
1624 GY
22 WH
X1 B
G
D
E
F
A
X88B Tow Vehicle Electrical Receptacle
G104
G407

6150630

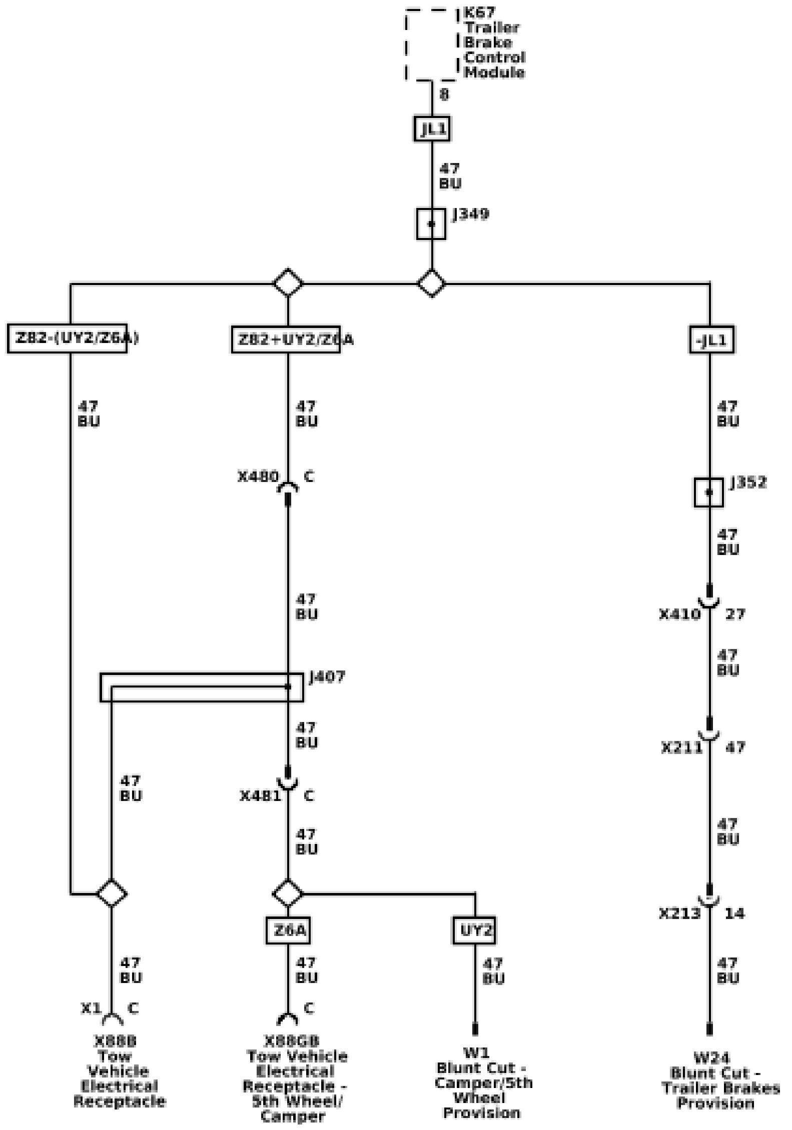
Trailering Systems Schematics Object-ID=6152404 (Trailer Connector Pins: A, B, D, E, F, G (Z82&Z6A-(UET/UY2)))


K219 Lighting Control Module
X5 29
13
X2 4
318 YE/BU
319 GN/BN
38 BU/BN
B+
X2 C1
X2 C2
X2 F3
X50A Engine Wiring Harness Junction Block
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
KR53 Parking Lamp Relay
KR61 Trailer Backup Lamp Relay
F73UA 10A
F81UA 10A
F84UA 30A
F41UA 20A
F55UA 10A
X1 A4
X4 G3
H3
H6
A3
B2
3940 RD/BU
X426 1
650 BK
1618 YE
1619 GN
3640 OG
2109 BN
1624 GY
X480 G
D
E
F
A
J402
J406
J405
J403
J404
X481 G
X1 G
22 WH
B
X88B Tow Vehicle Electrical Receptacle
3940 OG
X88GB Tow Vehicle Electrical Receptacle - 5th Wheel/ Camper
G104
G407
6150631

Trailering Systems Schematics Object-ID=6152404 (Trailer Connector Pins: A, B, D, E, F, G (Z82&UY2-(UET/Z6A)))

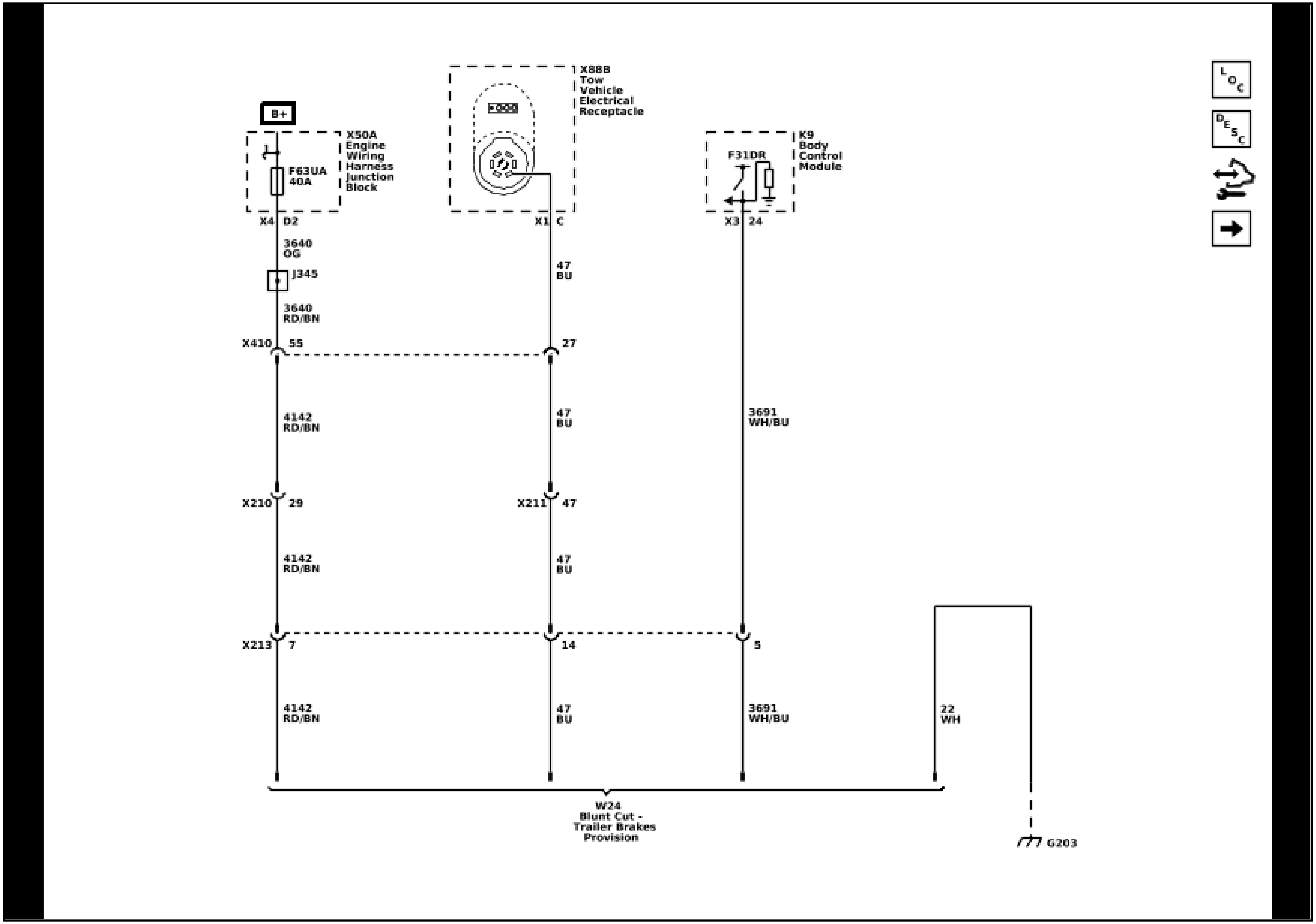

6150632
K219 Lighting Control Module
F31UA
F10DR
F7UA
X2 4
X5 13
X5 29
38 BU/BN
319 GN/BN
318 YE/BU
X2 F3
X2 C2
X2 C1
X50A Engine Wiring Harness Junction Block
KR61 Trailer Backup Lamp Relay
KR53 Parking Lamp Relay
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
B+
F55UA 10A
F41UA 20A
F84UA 30A
F81UA 10A
F73UA 10A
B2
A3
H6
H3
G3
X4
X1 A4
1624 GY
2109 BN
3940 RD/BU
X426 1
3640 OG
3940 OG
1619 GN
1618 YE
650 BK
X480
X481
X1
A
B
D
E
F
G
J404
J403
J405
J406
J402
22 WH
X88B Tow Vehicle Electrical Receptacle
W1 Blunt Cut - Camper/5th Wheel Provision
G407
G104

Trailering Systems Schematics Object-ID=6152404 (Trailer Connector Pin: C (Z82))


K67 Trailer Brake Control Module
8
JL1
47 BU
J349
Z82-(UY2/Z6A)
Z82+UY2/Z6A
-JL1
47 BU
X480 C
J352
J407
X410 27
X211 47
X481 C
X213 14
Z6A
UY2
X1 C
X88B Tow Vehicle Electrical Receptacle
X88GB Tow Vehicle Electrical Receptacle - 5th Wheel/ Camper
W1 Blunt Cut - Camper/5th Wheel Provision
W24 Blunt Cut - Trailer Brakes Provision

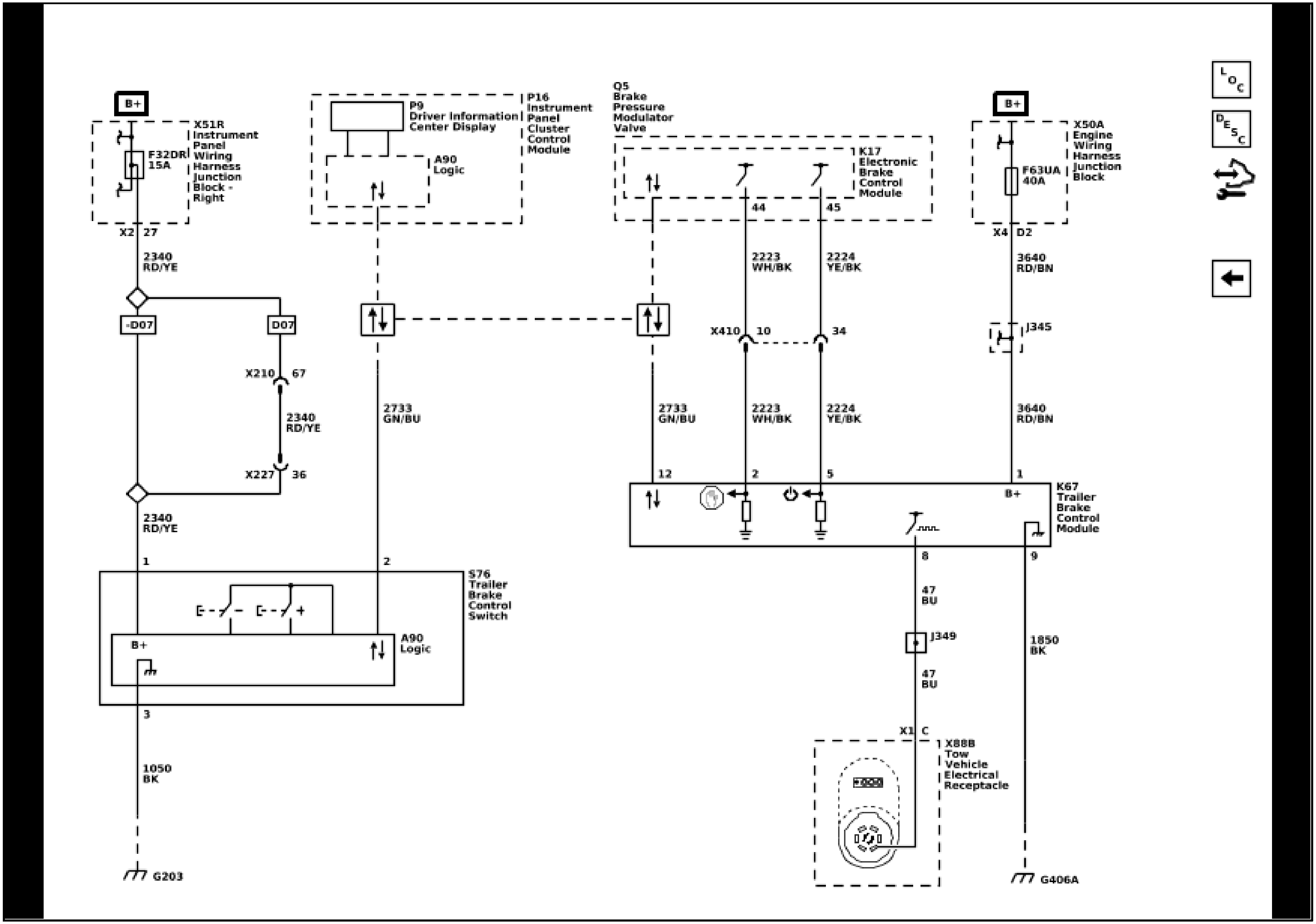
6150633

Trailering Systems Schematics Object-ID=6152404 (Trailer Brake Provisions (Z82 - JL1))


B+
X50A
Engine
Wiring
Harness
Junction
Block
F63UA
40A
X4 D2
3640
OG
J345
3640
RD/BN
X410 55
4142
RD/BN
X210 29
4142
RD/BN
X213 7
4142
RD/BN
X88B
Tow
Vehicle
Electrical
Receptacle
X1 C
47
BU
27
47
BU
X211 47
47
BU
14
47
BU
K9
Body
Control
Module
F31DR
X3 24
3691
WH/BU
5
3691
WH/BU
22
WH
G203
W24
Blunt Cut -
Trailer Brakes
Provision

6150634

Trailering Systems Schematics Object-ID=6152404 (Trailer Brake (JL1))


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F32DR 15A
X2 27
2340 RD/YE
-D07
D07
X210 67
2340 RD/YE
X227 36
2340 RD/YE
1
S76 Trailer Brake Control Switch
B+
A90 Logic
2
3
1050 BK
G203
P9 Driver Information Center Display
P16 Instrument Panel Cluster Control Module
A90 Logic
2733 GN/BU
Q5 Brake Pressure Modulator Valve
K17 Electronic Brake Control Module
44
45
2223 WH/BK
2224 YE/BK
X410 10
34
2733 GN/BU
2223 WH/BK
2224 YE/BK
12
2
5
K67 Trailer Brake Control Module
B+
8
9
47 BU
J349
47 BU
X1 C
X88B Tow Vehicle Electrical Receptacle
1850 BK
G406A
X50A Engine Wiring Harness Junction Block
F63UA 40A
X4 D2
3640 RD/BN
J345
3640 RD/BN
1
L O C
D E S C

6150635

Description and Operation

Trailering Description and Operation

Object-ID=6249334 Owner=Quinlan, Kyle LMD=03-Feb-2023 LMB=Quinlan, Kyle

Trailering System Overview

Begin the trailering system diagnosis with Diagnostic System Check - Trailering. The Diagnostic System Check - Trailering will provide a complete strategy to locate and repair a vehicle trailering electrical fault. Not following this strategy may cause additional diagnostic time and/or misdiagnosis.

The trailering system consists of the following:

- Trailer Lighting, refer to Trailer Lamps Malfunction for additional diagnostic information.
- {JL1} Trailer Brakes, refer to Trailer Brake Malfunction for additional diagnostic information.
- Trailer Battery Charging System, refer to Trailer Battery Charging Malfunction for additional diagnostic information.
- Trailer Detection, refer to Trailer Detection Malfunction for additional diagnostic information.
- Trailer Tire Pressure Monitoring System, refer to Trailer Tire Pressure Monitoring Malfunction for additional diagnostic information.
- Trailer Theft Detection.

7–Terminal Tow Vehicle Electrical Receptacle Pinout

- Terminal A – Trailer Backup Lamp Control
- Terminal B – Ground
- Terminal C – Trailer Brake Control
- Terminal D – Right Trailer Stop/Turn Signal Lamp Control
- Terminal E – B+
- Terminal F – Trailer Park Lamp Control
- Terminal G – Left Trailer Stop/Turn Signal Lamp Control

Connecting Aftermarket Accessories

- Some aftermarket accessories that connect to the X88B Tow Vehicle Electrical Receptacle will be recognized by the vehicle as a trailer connected, even if the accessory is not a trailer. As a result, side blind zone detection, rear park assist, and/or rear cross traffic alert will be turned off anytime the vehicle detects a trailer/accessory is connected.
- Vehicles equipped with U1D/UET have trailer theft detection that constantly monitors trailer connected status when enabled. This is done by randomly pulsing the lighting circuits of the trailer when the vehicle is parked. As a result, some aftermarket accessories may be turned ON/OFF when connected to the vehicle with theft detection enabled.
- Vehicles equipped with U1D/UET use pulse width modulation voltage (PWM) for trailer lighting functions. Some aftermarket accessories are incompatible with PWM and may not function correctly when connected to the trailer lighting circuits of the vehicle.

Trailer Battery Charging System

Trailer battery charging is accomplished through constant battery voltage from the X50A Engine Wiring Harness Junction Block to the X88B Tow Vehicle Electrical Receptacle. Battery voltage is supplied to terminal E at the X88B Tow Vehicle Electrical Receptacle at all times. If equipped, the trailer battery will constantly be charged by the vehicle’s electrical system anytime the trailer is connected. Some trailers require the B+ circuit to the X88B Tow Vehicle Electrical Receptacle for the trailer brakes to function.

Trailer Lighting and Detection With U1D/UET

Note:

- Some trailers utilize a trailer mounted control module to operate some or all of the trailer lights. These trailers may use the B+ circuit from the trailer connector to power the trailer lighting circuits. These trailers may not always be detected by the Trailer Lighting Control Module and may set faults.
- When a trailer is detected on a vehicle equipped with side blind zone detection, rear park assist, and/or rear cross traffic alert, the vehicle will automatically turn these features off. These features are turned off to prevent false detections due to the trailer obstructing the view of the sensors.
- Vehicles equipped with IOR/1FL do not come equipped with the trailering APP however may still be equipped with a K68 trailer Lamp Control Module.

The K68 Trailer Lamp Control Module is responsible for controlling the trailer lighting on vehicles with U1D/UET. The combined trailer stop/turn signal lamps of the trailer must draw at least 55mA of total current to be detected as a trailer or the Trailer Lamp Control Module will not control the lighting circuits. The Trailer Lamp Control Module receives serial data messages from the K9 Body Control Module (BCM) indicating what lamps have been activated on the vehicle. The Trailer Lamp Control Module responds by applying pulse width modulated voltage (PWM) to the appropriate control circuits for the requested lamps illuminating the lamps on the attached trailer. The Trailer Lamp Control Module constantly monitors for trailer connection status, trailer lighting faults, and trailer theft deterrent purposes. This is accomplished through the lighting circuits of the trailer to determine if a trailer is connected. When a trailer is connected, the Trailer Lamp Control Module senses the trailer connection and alerts the driver by requesting a trailer profile setup through the Trailering App, which is displayed on the infotainment screen. If a trailer is disconnected with the ignition ON, the vehicle will display multiple trailer lighting messages until a trailer is reconnected or the message is dismissed by the user. With the key OFF, the Trailer Lamp Control Module will periodically pulse the lighting circuits of the trailer to verify it is still connected. The lights on the trailer may flash at different intervals with the key OFF depending on which type of lights the trailer is built with. If a trailer is disconnected with the key ON, the vehicle will display a trailer disconnected message until a trailer is reconnected or the ignition is cycled.

Trailer Lighting Without U1D/UET

The K219 Lighting Control Module is responsible for controlling the trailer lighting on vehicles without U1D/UET. The lighting control module receives serial data messages from the K9 Body Control Module (BCM) indicating what lamps have been activated on the vehicle. The lighting control module responds by applying voltage to the appropriate relay control circuits for the requested lamps anytime the vehicle lamps are commanded ON. With the relay coil energized, the relay contacts close and allow voltage to flow through the relay illuminating the appropriate lamps on the attached trailer.

Trailer Messages

The driver information center (P16 Instrument Cluster) or infotainment screen (P17 Info Display Module) may display one or more of the following messages to the user related to trailering:

Trailering Message	Description
Check Trailer Left Turn Signal Lamp	The K68 Trailer Lighting Control Module detects a fault on the left trailer stop/turn lamp control circuit
Check Trailer Right Turn Signal Lamp	The K68 Trailer Lighting Control Module detects a fault on the right trailer stop/turn lamp control circuit
Check Trailer Rear Lamp	The K68 Trailer Lighting Control Module detects a fault on the trailer park lamp control circuit.
Check Trailer Reversing Lamp	The K68 Trailer Lighting Control Module detects a fault on the trailer backup lamp control circuit.
Check Trailer Brake Lamps	The K68 Trailer Lighting Control Module detects a fault on the left and/or right trailer stop/turn lamp control circuits
{JL1} Check Trailer Wiring	The K67 Trailer Brake Power Control Module detects a fault on the trailer brake control circuit or the trailer was disconnected.
Lane Change Alert Off	Reminder to the user that lane change alerts are turned off anytime a trailer is detected.
Rear Cross Traffic Alert Off	Reminder to the user that rear cross traffic alerts are turned off anytime a trailer is detected.
Rear Park Assist Off	Reminder to the user that rear park assist is turned off anytime a trailer is detected.
Remember to turn On Tow/Haul Mode	Reminder to the user to turn ON Tow/Haul Mode when towing.
{JL1} Service Trailer Brake System	The K67 Trailer Brake Power Control Module detects a fault on the trailer brake control circuit.
Service Trailer Tire Monitor System	The K214 Trailer Tire Pressure Indicator Module detects one or more issues with the trailer tire pressure monitoring system.
Trailer Detected	The K68 Trailer Lighting Control Module detects a trailer has been connected to the X88B Tow Vehicle electrical Receptacle.
{JL1} Trailer Brakes Detected	The K67 Trailer Brake Power Control Module detects a trailer with trailer brakes has been connected to the X88B Tow Vehicle electrical Receptacle.
Trailer Disconnected Check Connection	The K68 Trailer Lighting Control Module detects a trailer has been disconnected from the X88B Tow Vehicle electrical Receptacle.
Trailer Tire Pressure High	The K214 Trailer Tire Pressure Indicator Module detects one or more of the trailer tire pressures is high.
Trailer Tire Pressure Low	The K214 Trailer Tire Pressure Indicator Module detects one or more of the trailer tire pressures is low.
Trailer Tire Sensor Fault	The K214 Trailer Tire Pressure Indicator Module detects one or more of the trailer tire pressure sensors has a fault.
Trailer Tire Temperature High	The K214 Trailer Tire Pressure Indicator Module detects one or more of the trailer tire temperatures is too high.

Trailer Theft Detection (With U1D/UET Only)

Trailer theft monitoring can be turned ON and OFF through the vehicle Trailer App. When enabled, any time the trailer theft deterrent system is armed, the trailer lighting circuits are constantly monitored to determine if a trailer is connected for trailer theft deterrent purposes. With the key OFF, the K68 Trailer Lamp Control Module will randomly pulse the lighting circuits of the trailer to verify it is still connected by monitoring the voltage drop of the circuit. Depending on the configuration of the trailer lights, the trailer lights may randomly flash as part of the trailer theft deterrent function. These flashes correspond to when the K68 Trailer Lamp Control Module pulses the lighting circuits to ensure the trailer is still connected and is considered normal. If the trailer is disconnected while the trailer theft deterrent system is armed, the vehicle will flash the exterior lights and cycle the horn to alert of a trailer theft event. Refer to *Theft Systems Description and Operation on page 8-689* for more information on the content theft deterrent system.

Trailer Brakes (JL1)

The vehicle is equipped with the following trailer braking components:

- K160 Brake System Control Module
- K67 Trailer Brake Control Module
- S76 Trailer Brake Control Switch
- Trailer Brake Driver Information Center Display

Trailer Brake Circuits

- Circuit 2223 is the trailer brake apply signal circuit. The K160 Brake System Control Module receives vehicle braking force data and/or data from the application of the manual trailer brake slide lever. The brake system control module responds by applying the appropriate amount of pulse width modulated (PWM) voltage based on the amount of trailer brake application desired. The K67 Trailer Brake Power Control Module responds to the signal circuit by applying the appropriate amount of PWM voltage to the trailer auxiliary control circuit 47.
- Circuit 2224 is the trailer brake enable signal circuit. The K160 Brake System Control Module applies voltage to the enable circuit anytime a LIN data communication fault is not present, a trailer is connected, and the vehicle brakes are being applied. The enable circuit must have voltage applied to it before the K133 Trailer Brake Power Control Module applies the appropriate amount of pulse width modulated (PWM) voltage to the trailer auxiliary control circuit 47.
- Circuit 2733 is the brake system control module LIN bus 2 circuit. The K160 Brake System Control Module, K67 Trailer Brake Power Control Module, and the S76 Trailer Brake Control Switch all communicate through the brake system control module LIN bus 2 circuit. If the LIN bus has a fault on the circuit, trailer braking will be disabled until the fault is repaired.
- Circuit 47 is the trailer auxiliary control circuit. The K133 Trailer Brake Power Control Module responds to signal circuit 2223 and enable circuit 2224 by applying the appropriate amount of PWM voltage to the trailer auxiliary control circuit. A properly functioning trailer will apply the appropriate amount of braking force to the brakes of the trailer.

The Trailer Brake Control System is compatible with two types of Trailer Brake Systems as listed below:

1. **Electric Brakes** A controlled electrical output signal energizes an electric-magnet/lever arm assembly that directly actuates the brake mechanism. The GDS name for this system is “Electromagnetic Brakes”.
2. **Electric Over Hydraulic Brakes** A controlled electrical output signal energizes a remote, trailer mounted hydraulic pump to build brake pressure in a closed hydraulic system on the trailer. The hydraulic fluid pressure actuates the brake mechanism. The GDS name for this system is “Electrohydraulic Brakes”.

Trailer Brake Output Versus Trailer Brake Type

- The trailer brake system characterizes the trailer brakes as either Electric Brake or Electric Over Hydraulic Brake automatically. This characterization may be affected by the number, type, and age of the trailer brake magnets, as well as any other devices installed on the trailer brakes (i.e. adapters for Electric Over Hydraulic brake functionality).
- The trailer brake system is fully operational with either characterization.
- Sliding the manual trailer brake apply lever will produce output at zero speed for either characterization.

The user gain allows the driver to adjust the amount of trailer brake output to match the trailer load and road surface. The controller determines the desired trailer brake output and provides a control signal to the K67 Trailer Brake Control Module (TBPM). The K67 Trailer Brake Control Module amplifies the signal and provides the output required to activate the Electric or Electric Over Hydraulic trailer brakes.

The trailer brake control can support up to a maximum of four axles with electric trailer brakes (8 brake magnets).

Connecting a trailer that is not compatible with the trailer brake system may result in reduced or complete loss of trailer braking. There may be an increase in stopping distance or trailer instability which could result in personal injury or damage to the vehicle, trailer or other property. An aftermarket controller may be available for use with incompatible trailer brake systems.

To determine the type of brakes on your trailer and the availability of controllers, check with your trailer manufacturer or dealer. Do not power up an aftermarket controller with the factory brake controller at the same time.

Trailer Brake Control Panel

The S76 Trailer Brake Control Switch contains the trailer gain and manual apply switches. It is located in the vehicle center stack. Refer to the owner's manual for more information on the location. The control panel and switches allows you to adjust the amount of output, referred to as trailer gain, available to the Electric or Electric Over Hydraulic brakes. It also allows you to manually apply the trailer brakes. The trailer brake control switch is used along with the trailer brake display page on the driver information center to adjust and display power output to the trailer brakes.

Manual Trailer Brake Apply

The manual trailer brake apply lever is located on the S76 Trailer Brake Control Switch and is used to apply the trailer's Electric or Electric Over Hydraulic brakes independent of the vehicle's brakes. This lever is used in the trailer gain adjustment procedure to properly adjust the power output to the trailer brakes.

Sliding the lever will apply only the trailer brakes. The power output to the trailer is indicated in the trailer brake display page in the Driver Information Center (DIC). If the vehicle's service brakes are applied while using the manual trailer brake apply lever, the trailer brake control output power will be the greater of the two.

The trailer and the vehicle's brake lamps will come on when either the vehicle's braking or manual trailer brakes are applied.

Trailer Brake Gain Adjustment

Trailer gain should be set for a specific trailering condition and must be adjusted any time vehicle loading, trailer loading or road surface conditions change. It is important to re-adjust trailer gain any time the tow vehicle, trailer loading or road surface conditions change or if you notice trailer wheel lock-up at any time while you are towing.

Setting the trailer gain properly is needed for the best trailer stopping performance. A trailer that is over-gained may result in locked trailer brakes. A trailer that is under-gained may result in not enough trailer braking. Both of these conditions may result in poor stopping and stability of the vehicle and trailer.

Trailer Gain Adjustment Procedure

- Adjust trailer gain in 0.5 step increments up to 10 gain setting by using the gain adjustment +/− buttons on the trailer brake control panel switch. Pressing and holding a gain button will cause the trailer gain to continuously increment or decrement. To turn the output to the trailer off, set the gain to zero.
- Drive the tow vehicle and trailer combination on a level surface representative of the towing condition and free of traffic at approximately 32–40 km/h (20–25 mph) and fully apply the manual trailer brake apply lever mechanism located on the trailer brake control panel switch. Adjusting the trailer gain at slower speeds may result in an incorrect gain setting.
- Adjust the trailer gain to just below the threshold of trailer wheel lock-up . Trailer wheel lock-up may not occur if towing a heavily loaded trailer. In this case, adjust the trailer gain to the highest allowable setting for the towing condition.

Trailer Brake Gain and Output Display

This display menu can be accessed by scrolling through the DIC menu, or any time the trailer gain +/− button is depressed, or the manual trailer brake apply lever is actuated. The trailer output is displayed from 0 to full output and indicates the output power provided to the trailer brakes, relative to the gain setting.

After the electrical connection is made to a trailer equipped with electric brakes or electric over hydraulic brakes, the TRAILER CONNECTED message will be displayed momentarily on the DIC. The Trailer Brake Display Page can be selected on the DIC showing TRAILER GAIN and OUTPUT, after all vehicle related service messages are acknowledged by the driver. Depending on which instrument panel cluster is in the vehicle, the DIC may display dashed lines, a greyed out display, or it may be blank signifying a disconnected trailer or a trailer brake fault condition.

Trailer Brake Driver Information Center Indicators and Messages

Trailer Brake Detection

The K67 Trailer Brake Control Module constantly monitors the trailer auxiliary control circuit from Terminal C at the X88B Tow Vehicle electrical Receptacle. When a trailer is connected with trailer brakes, the K67 Trailer Brake Control Module senses the connection and alerts the driver with a Trailer Connected message. If the K67 Trailer Brake Control Module senses a fault, or the trailer becomes disconnected, the vehicle will alert the driver with a Check Trailer Wiring message.

The following indicators are used to inform the driver of several different conditions:

Trailer Connected

This message will be briefly displayed when a trailer with Electric or Electric Over Hydraulic brakes is first connected to the vehicle. This message will automatically turn off in about ten seconds. The driver can also acknowledge this message before it automatically turns off.

Check Trailer Wiring

This message will be displayed if:

- The system detects that a trailer with Electric or Electric Over Hydraulic brakes is connected to the vehicle and then the trailer harness becomes disconnected from the vehicle.
- The trailer connection is recognized initially and then a disconnect occurs while the vehicle is stationary. This message will automatically turn off in about thirty seconds. This message will also turn off if the driver selects to turn this message off or if the trailer harness is reconnected.

- A disconnect of the trailer wiring harness occurs while the vehicle is moving. The Check Trailer Wiring message will continue until the ignition is turned off. The message will also turn off if the driver selects to turn this message off or it the trailer harness is re-connected.
- There is an electrical fault in the wiring to the electric trailer brakes. The Check Trailer Wiring message will continue as long as there is an electrical fault in the trailer wiring. This message will also turn off if the driver acknowledges this message off.
- A poor connection at the 7–way connector may cause the Check Trailer Wiring message. Some aftermarket 7–way trailer side connector adapters or plugs may cause deformation or excessive wear to the vehicle's trailer terminals. It is recommended that you use an OEM or Pollak heavy duty 7–way trailer side connector adapter.

Service Trailer Brake System

This message will be displayed when there is a problem with the trailer brake control system. The trailer brake system may not be fully functional, or may not be functioning at all. The trailer brake system is designed to provide trailer braking, if possible, even when faults prevent it from being fully functional. This reduced functionality includes:

1. Providing trailer braking when the master cylinder pressure or brake pedal switch are faulted.
2. Providing trailer braking when hill start assist and trailer sway control communication is faulted.
3. Providing trailer braking when certain manual trailer brake apply lever faults are present.

Trailer Tire Pressure Monitoring

Special Tools

- *EL-46079/J-46079* Tire Pressure Monitor Diagnostic Tool
- *EL-50448* Tire Pressure Monitor Sensor Activation Tool
- *EL-52641* Trailer Presence Simulator Tool

For equivalent regional tools, refer to Special Tools.

The Trailer Tire Pressure Monitor System is designed to monitor the pressure of the trailer tires, and warn the driver when a low pressure condition exists. Four Trailer Tire Pressure Monitor System sensors may be provided in the vehicle's glove box as an accessory when equipped. The system can accommodate a trailer with up to (6) tires if additional sensors are purchased from the dealership. Also, the system can be paired with up to (5) individual trailers. The sensors must be mounted onto each tire and wheel assembly, and the sensors must be learned by the vehicle by following the learning procedure as shown in the Trailering App section of this manual. For sensor installation assistance, please contact your trailer service center or tire service center. The Trailer Tire Pressure Monitor System sensors monitor the air pressure in the trailer tires and transmit the trailer tire pressure readings to a receiver located in the vehicle. The trailer tire pressure sensors can transmit up to 23 feet (7 meters) from the hitch receiver of the vehicle. The tire pressure values can be viewed in the trailering app in the vehicle's center stack.

Trailering Diagnostic Tools

In some situations when diagnosing trailer tire pressure monitoring, trailer lighting, or integrated trailer brakes, it may be necessary to connect the vehicle to a trailer to confirm proper operation. Performing this activity may prove difficult in the service environment since trailers are not often available for diagnostic use, may have existing electrical issues outside of the issues a technician is attempting to diagnose, or simply may be too unwieldily to connect for diagnosis.

With all this in mind, it may be helpful to build or create a tool that can be plugged into the vehicle's trailer connector and simulate a connected trailer. This tool would include park lamps, stop lamps, and a reverse lamp for lighting and trailer tire pressure monitoring diagnosis. It can be expanded to include trailer brake magnets to diagnose integrated trailer brake concerns. Also, an additional lamp can be included to diagnose the B+ circuit to the trailer.

Trailer issues are NOT covered under warranty, but these tools may be used to verify the vehicle is functioning properly and to help the customer understand and correct any trailer related issues if they so choose.

Available Trailer Presence Simulator Tool

Illustration	Tool Number/Description
	EL-52641 Trailer Presence Simulator Tool

Simulated Trailer Lighting

Creating a tool to simulate a connected trailer can be used to diagnose issues with trailer lighting, trailer brake (if equipped), the Trailering App (if equipped), and trailer tire pressure monitoring system (if equipped).

If the vehicle is equipped with a K68 Trailer Lamp Control Module (U1D/UET), the module monitors the current on the lighting circuits to determine a trailer has been connected. The Trailer Lamp Control Module pulses current on the trailer lighting circuits every 42 minutes to monitor for a connected trailer. If a current draw greater than 55mA is detected, the Trailer Lamp Control Module recognizes this as a connected trailer. This will enable any trailer lighting controlled by the Trailer Lamp Control Module. The Center Stack

Module will also use this trailer detection as a cue to enable the Trailering App and trailer tire pressure monitoring functions.

Creating a Simulated Trailer Lighting Tool

Parts needed:

- 7-way RV trailer connector Qty: 1

  Note: The combination trailer stop/turn, and backup lamps must draw at least 55mA of total current to be detected as a trailer. Some LED combination lamps will not draw enough current. If an LED combination lamp is used, make sure it draws at least 55mA. A load resistor can be added to the circuit if necessary to obtain the correct load.
- Combination trailer park/stop/turn lamp (greater than 55mA drawn when on) Qty: 2
- Reverse lamp Qty: 1
- 12 gauge wire and terminals/connectors Qty: As needed
- 18 gauge wire and terminals/connectors Qty: As needed
- Mounting board Qty: 1

1. Connect a 12 gauge wire to the ground terminal of the 7-way trailer connector and the ground circuit of each combination trailer park/stop/turn lamp and the reverse lamp in parallel.
2. Connect an 18 gauge wire between the park lamp terminal of the 7-way trailer connector and the park lamp circuit of each combination trailer park/stop/turn lamp in parallel.
3. Connect an 18 gauge wire between the left turn/stop lamp terminal of the 7-way trailer connector and the turn/stop lamp circuit of left trailer park/stop/turn lamp.
4. Connect an 18 gauge wire between the right turn/stop lamp terminal of the 7-way trailer connector and the turn/stop lamp circuit of right trailer park/stop/turn lamp.
5. Connect an 18 gauge wire between the reverse lamp terminal of the 7-way trailer connector and the reverse lamp.

   Note: A combination trailer lighting and trailer brake tool can be created on the same mounting board.
6. Mount the left combination trailer park/stop/turn lamp, right combination trailer park/stop/turn lamp, and reverse lamp to the mounting board.
7. Plug the 7-way RV trailer connector to the vehicle and verify functionality.

Simulated Trailer Brakes

Creating a tool to simulate trailer brakes can be used to diagnose trailer brake issues.

The trailer brake control system is compatible with two types of trailer brake systems: electromagnetic or electro-over hydraulic trailer brakes. The Brake System Control Module must determine which type of brakes the trailer is equipped with so the system can output correctly for the trailer's brake system. Because the Brake System Control Module has to determine the type of trailer brake system that is being used, it can be sensitive to a variety of trailer wiring issues.

The Trailer Brake Control Module continuously sends a test pulse out on the trailer brake control circuit (circuit 47) to determine if a trailer with trailer brakes has been connected. How the pulse reacts when a trailer is connected is how the Trailer Brake Control Module determines which type of braking system the trailer is equipped with.

Even after the system detects the trailer, Trailer Brake Control Module will continue to send this test pulse on the trailer brake control circuit, which now is monitoring both the truck and trailer circuitry. The trailer brake control circuit continues to be monitored for any faults so the driver can be notified of any issues that may occur within the truck or trailer, as well as, to determine when the trailer is disconnected from the truck.

Creating a Simulated Trailer Brake Tool

Parts needed:

- 7-way RV trailer connector Qty: 1
- Electric trailer brake magnets Qty: 2, 4, 6, or 8
- Reverse lamp Qty: 1
- Mounting board Qty: 1
- 12 gauge wire and terminals/connectors Qty: As needed

1. Connect a 12 gauge wire to the ground terminal of the 7-way trailer connector.
2. Connect a 12 gauge wire to the brake controller output terminal of the 7-way trailer connector.

   Note: The trailer brake magnets must be connected in parallel. Connecting in series will create an excessive current draw and disable the trailer brake system.
3. Connect the trailer brake magnets to the 12 gauge wires from the 7-way trailer connector in parallel.

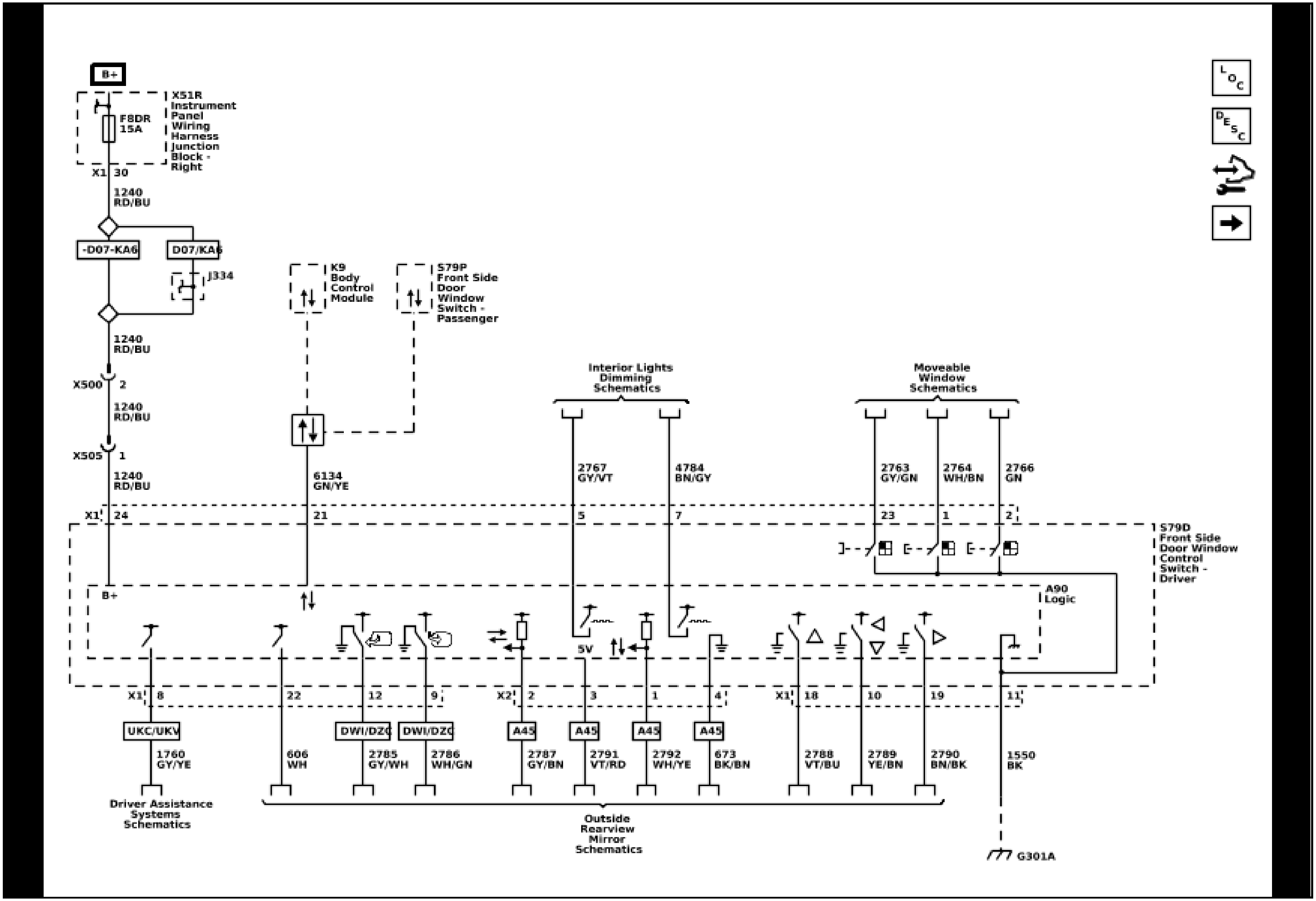
   Note: A combination trailer lighting and trailer brake tool can be created on the same mounting board.
4. Mount the trailer brake magnets to the mounting board.
5. Plug the 7-way RV trailer connector to the vehicle and verify functionality.

Body Systems

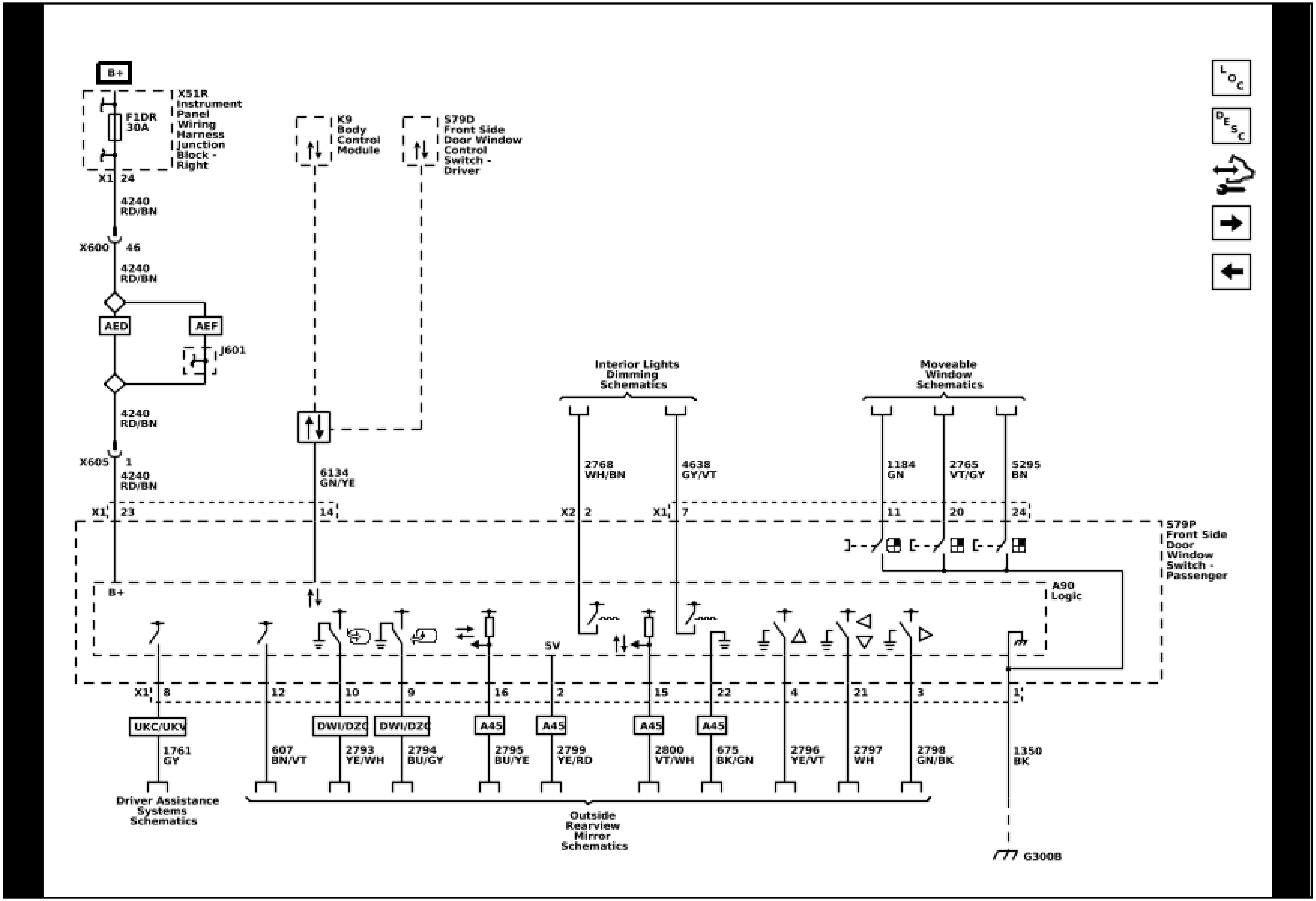
Vehicle Access

Schematic and Routing Diagrams

Door Lock/Indicator Schematics Object-ID=6152319 (Driver Door Switch Panel Control Module Power, Ground, Serial Data, and Subsystem References)

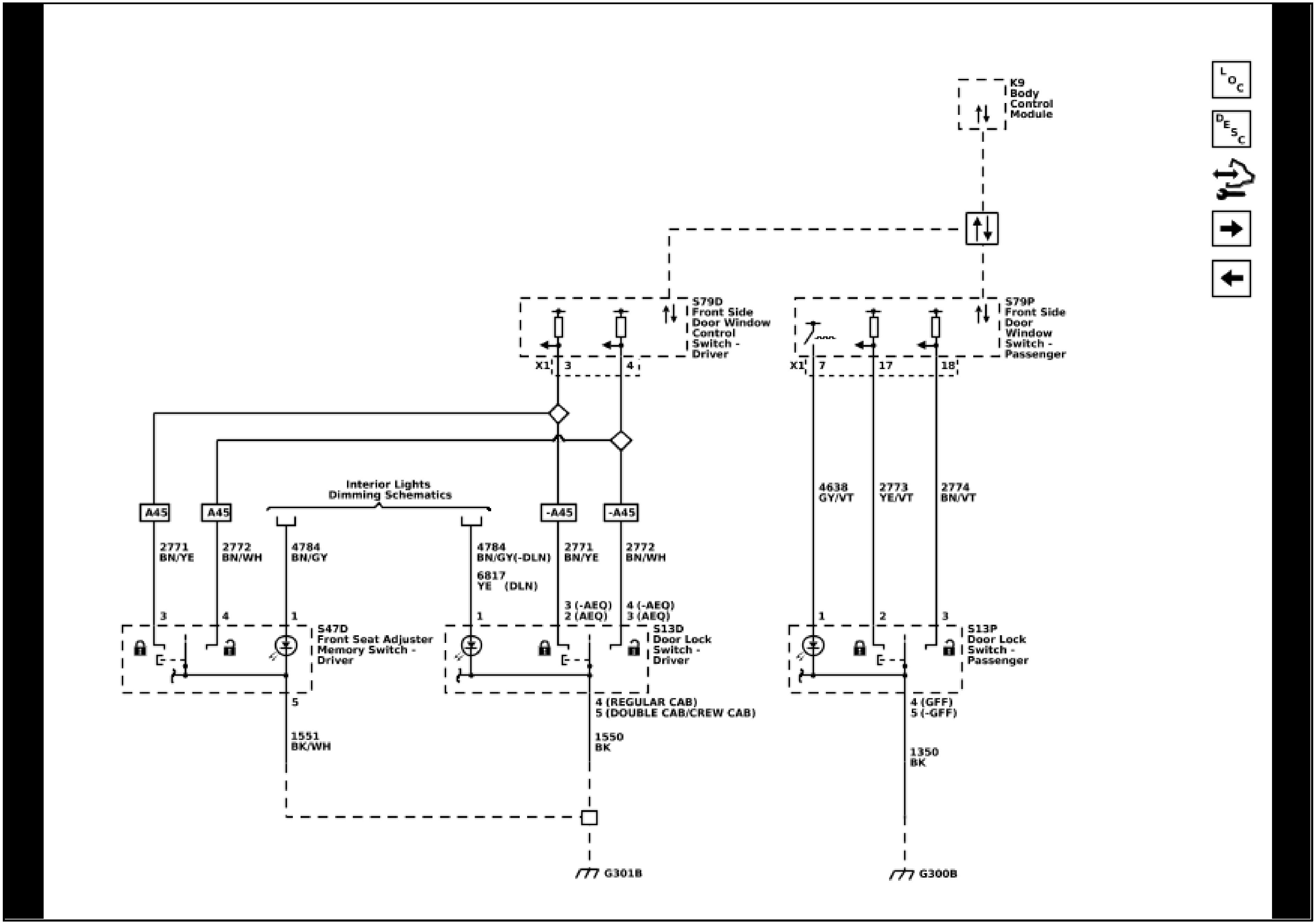

B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F8DR 15A
X1 30
1240 RD/BU
-D07-KA6
D07/KA6
J334
1240 RD/BU
X500 2
1240 RD/BU
X505 1
1240 RD/BU
K9 Body Control Module
S79P Front Side Door Window Switch - Passenger
6134 GN/YE
Interior Lights Dimming Schematics
2767 GY/VT
4784 BN/GY
Moveable Window Schematics
2763 GY/GN
2764 WH/BN
2766 GN
X1 24
21
5
7
23
1
2
S79D Front Side Door Window Control Switch - Driver
A90 Logic
B+
5V
X1 8
22
12
9
X2 2
3
1
4
X1 18
10
19
11
UKC/UKV
DWI/DZC
DWI/DZC
A45
A45
A45
A45
1760 GY/YE
606 WH
2785 GY/WH
2786 WH/GN
2787 GY/BN
2791 VT/RD
2792 WH/YE
673 BK/BN
2788 VT/BU
2789 YE/BN
2790 BN/BK
1550 BK
Driver Assistance Systems Schematics
Outside Rearview Mirror Schematics
G301A
6150448

Door Lock/Indicator Schematics Object-ID=6152319 (Passenger Door Switch Panel Control Module Power, Ground, Serial Data, and Subsystem References)


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F1DR 30A
X1 24
4240 RD/BN
X600 46
4240 RD/BN
AED
AEF
J601
4240 RD/BN
X605 1
4240 RD/BN
X1 23
B+
K9 Body Control Module
S79D Front Side Door Window Control Switch - Driver
6134 GN/YE
14
Interior Lights Dimming Schematics
2768 WH/BN
X2 2
4638 GY/VT
X1 7
Moveable Window Schematics
1184 GN
2765 VT/GY
5295 BN
11
20
24
S79P Front Side Door Window Switch - Passenger
A90 Logic
5V
X1 8
12
10
9
16
2
15
22
4
21
3
1
UKC/UKV
DWI/DZC
DWI/DZC
A45
A45
A45
A45
1761 GY
607 BN/VT
2793 YE/WH
2794 BU/GY
2795 BU/YE
2799 YE/RD
2800 VT/WH
675 BK/GN
2796 YE/VT
2797 WH
2798 GN/BK
1350 BK
Driver Assistance Systems Schematics
Outside Rearview Mirror Schematics
G300B
LOC
DESC

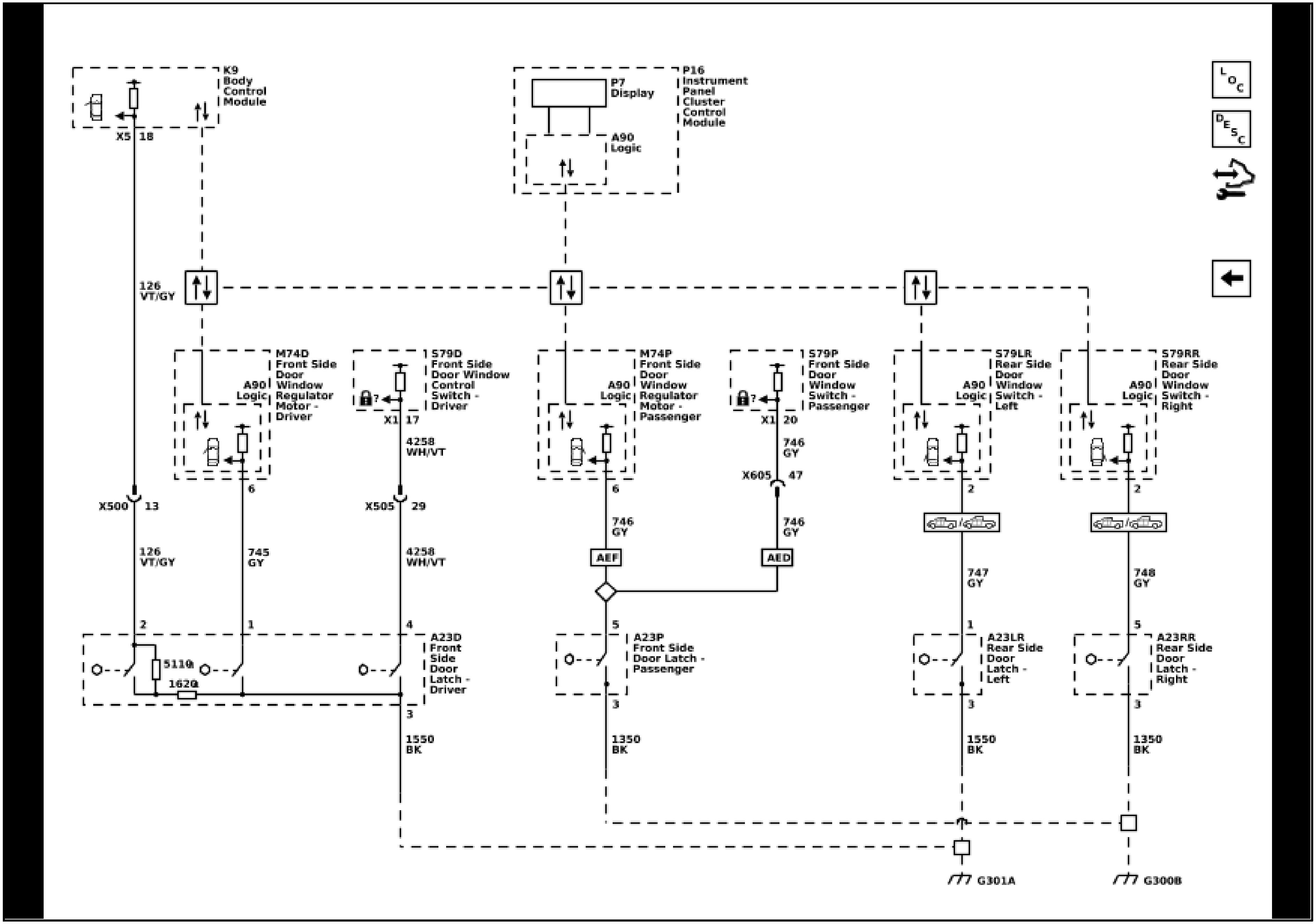
6150449

Door Lock/Indicator Schematics Object-ID=6152319 (Door Lock Switches and Indicators)


K9
Body
Control
Module
S79D
Front Side
Door Window
Control
Switch -
Driver
S79P
Front Side
Door
Window
Switch -
Passenger
X1
3
4
X1
7
17
18
4638
GY/VT
2773
YE/VT
2774
BN/VT
Interior Lights
Dimming Schematics
A45
A45
-A45
-A45
2771
BN/YE
2772
BN/WH
4784
BN/GY
4784
BN/GY(-DLN)
6817
YE (DLN)
2771
BN/YE
2772
BN/WH
3
4
1
1
3 (-AEQ)
2 (AEQ)
4 (-AEQ)
3 (AEQ)
1
2
3
S47D
Front Seat Adjuster
Memory Switch -
Driver
S13D
Door Lock
Switch -
Driver
S13P
Door Lock
Switch -
Passenger
5
4 (REGULAR CAB)
5 (DOUBLE CAB/CREW CAB)
4 (GFF)
5 (-GFF)
1551
BK/WH
1550
BK
1350
BK
G301B
G300B

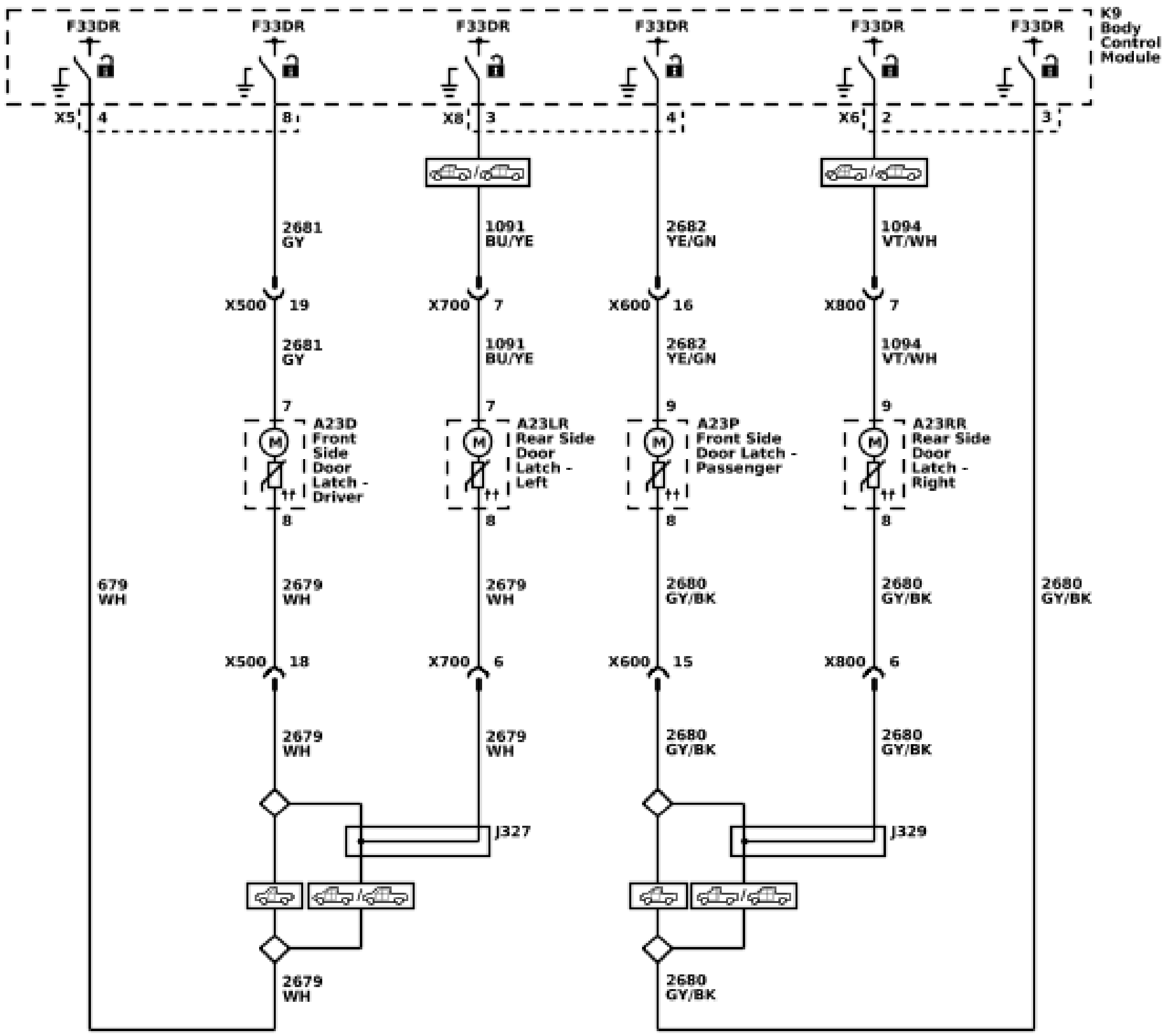
6150450

Door Lock/Indicator Schematics Object-ID=6152319 (Ajar Switches, Lock Status and Child Lock Status)


K9
Body
Control
Module
X5 18
P16
Instrument
Panel
Cluster
Control
Module
P7
Display
A90
Logic
126
VT/GY
M74D
Front Side
Door
Window
Regulator
Motor -
Driver
A90
Logic
S79D
Front Side
Door Window
Control
Switch -
Driver
X1 17
4258
WH/VT
M74P
Front Side
Door
Window
Regulator
Motor -
Passenger
A90
Logic
S79P
Front Side
Door
Window
Switch -
Passenger
X1 20
746
GY
S79LR
Rear Side
Door
Window
Switch -
Left
A90
Logic
S79RR
Rear Side
Door
Window
Switch -
Right
A90
Logic
6
X500 13
X505 29
6
X605 47
2
2
126
VT/GY
745
GY
4258
WH/VT
746
GY
746
GY
AEF
AED
747
GY
748
GY
2
1
4
5
1
5
A23D
Front
Side
Door
Latch -
Driver
511Ω
162Ω
A23P
Front Side
Door Latch -
Passenger
A23LR
Rear Side
Door
Latch -
Left
A23RR
Rear Side
Door
Latch -
Right
3
3
3
3
1550
BK
1350
BK
1550
BK
1350
BK
G301A
G300B
L O C
D E S C

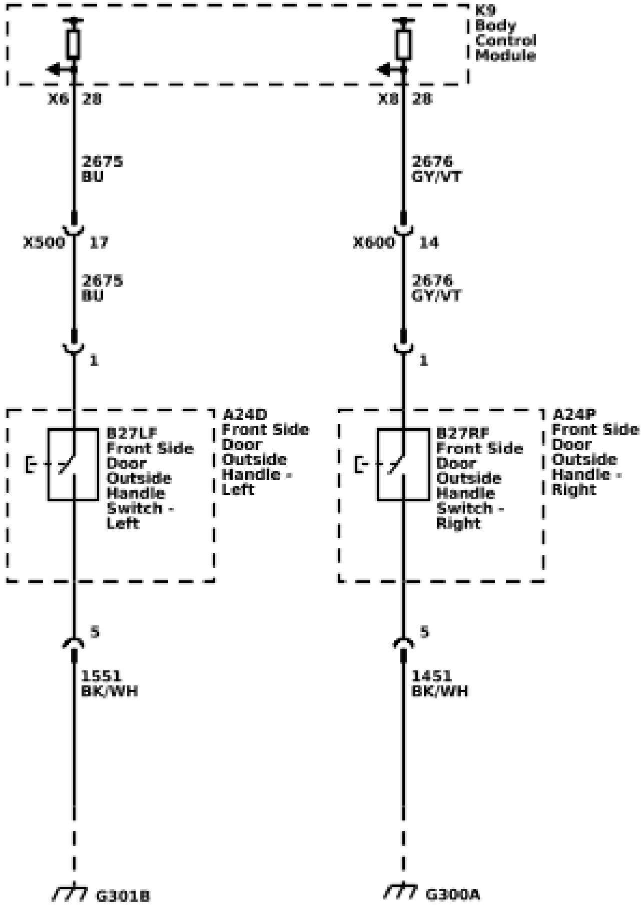
6150451

Door Lock/Indicator Schematics Object-ID=6152319 (Actuators)


K9 Body Control Module
F33DR
F33DR
F33DR
F33DR
F33DR
F33DR
X5 4
8
X8 3
4
X6 2
3
2681 GY
1091 BU/YE
2682 YE/GN
1094 VT/WH
X500 19
X700 7
X600 16
X800 7
2681 GY
1091 BU/YE
2682 YE/GN
1094 VT/WH
7
7
9
9
A23D Front Side Door Latch - Driver
A23LR Rear Side Door Latch - Left
A23P Front Side Door Latch - Passenger
A23RR Rear Side Door Latch - Right
M
8
8
8
8
679 WH
2679 WH
2679 WH
2680 GY/BK
2680 GY/BK
2680 GY/BK
X500 18
X700 6
X600 15
X800 6
2679 WH
2679 WH
2680 GY/BK
2680 GY/BK
J327
J329
2679 WH
2680 GY/BK

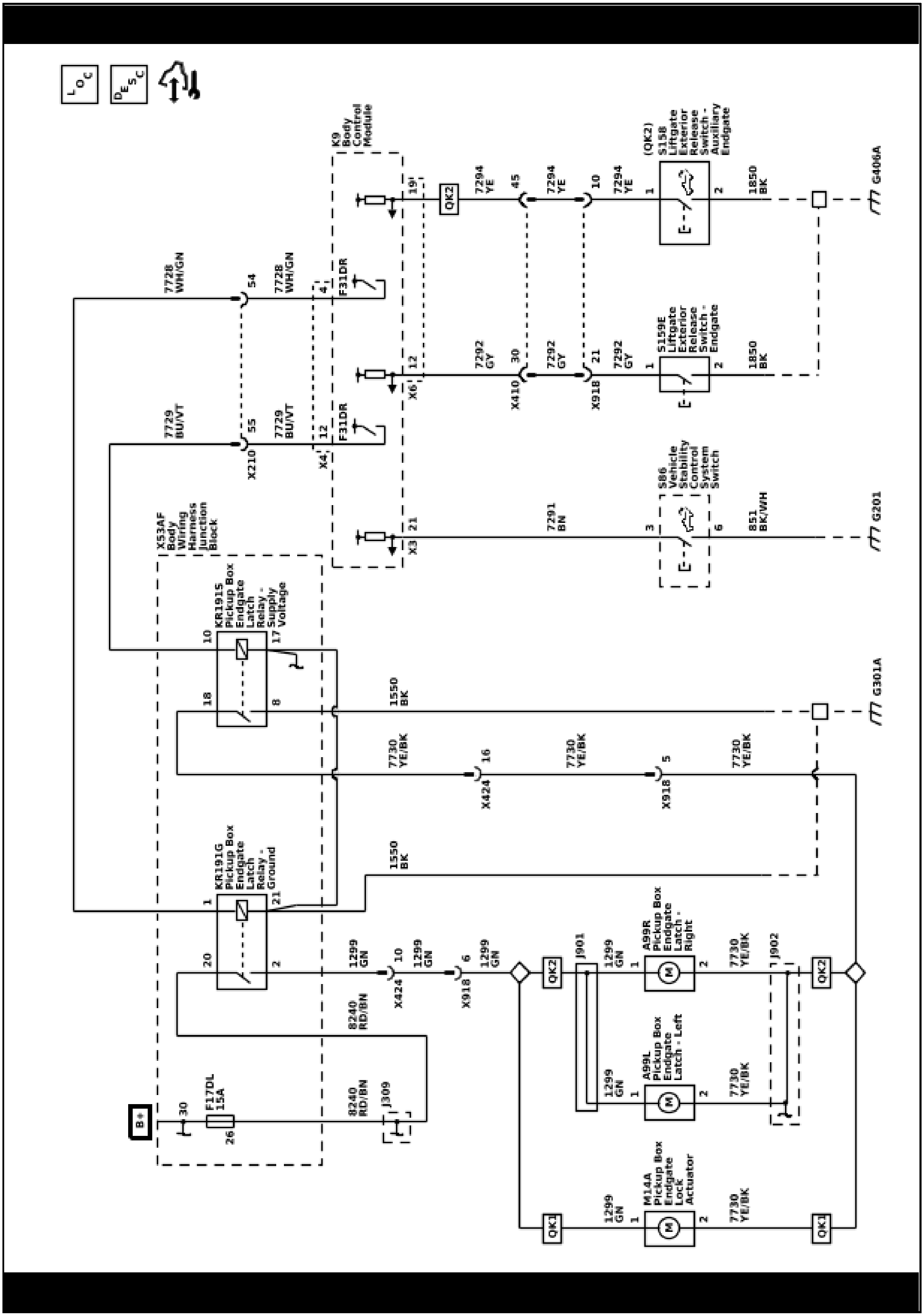
6150415

Door Lock/Indicator Schematics Object-ID=6152319 (Door Handle Switches)

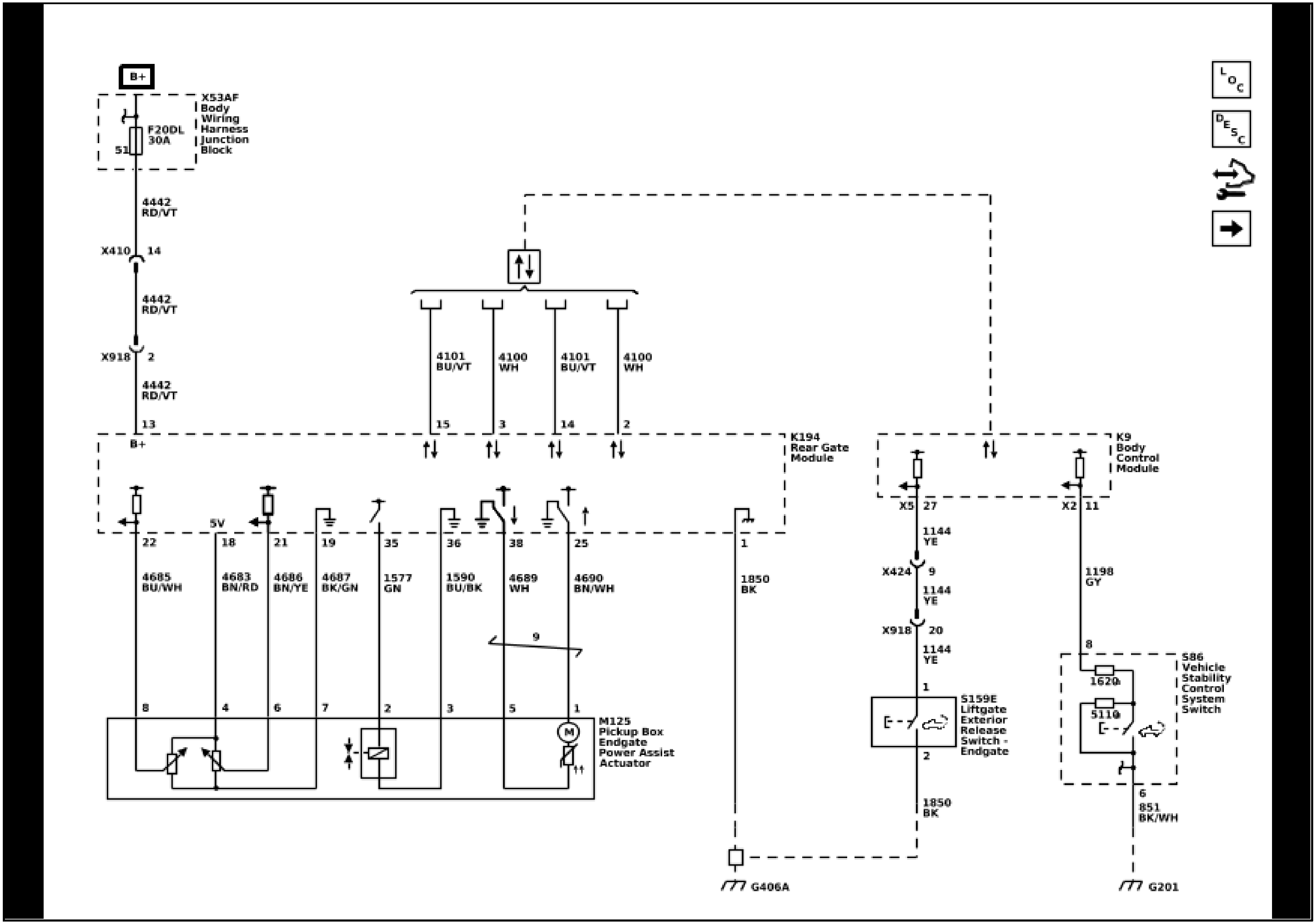

K9
Body
Control
Module
X6 28
2675
BU
X500 17
2675
BU
1
B27LF
Front Side
Door
Outside
Handle
Switch -
Left
A24D
Front Side
Door
Outside
Handle -
Left
5
1551
BK/WH
G301B
X8 28
2676
GY/VT
X600 14
2676
GY/VT
1
B27RF
Front Side
Door
Outside
Handle
Switch -
Right
A24P
Front Side
Door
Outside
Handle -
Right
5
1451
BK/WH
G300A

6150416

Release Systems Schematics Object-ID=6152320 (Endgate Release (QT5))

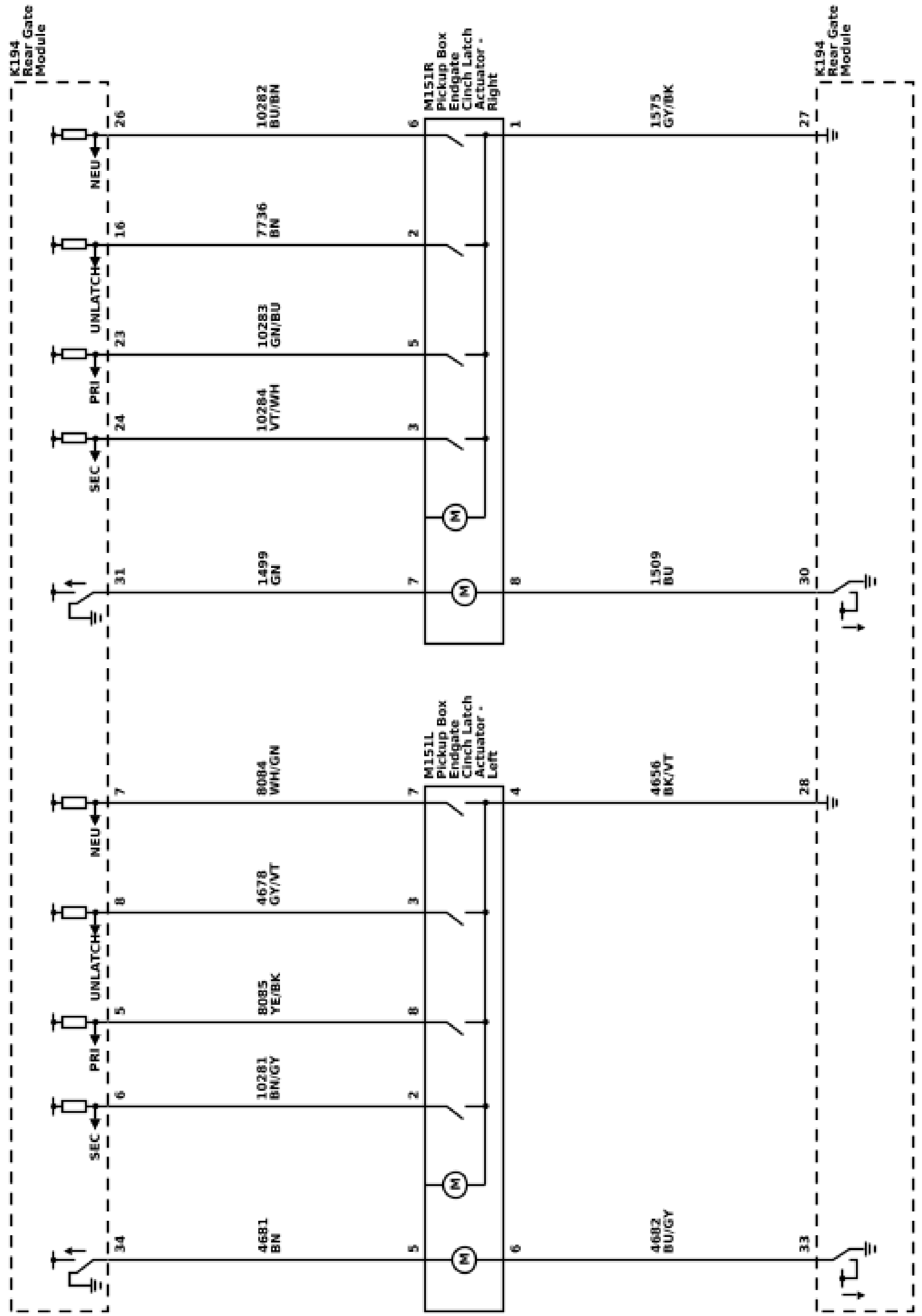

6150452
LOC
DESC
K9 Body Control Module
X53AF Body Wiring Harness Junction Block
B+
30
F17DL 15A
26
8240 RD/BN
J309
KR191G Pickup Box Endgate Latch Relay - Ground
1
21
20
2
KR191S Pickup Box Endgate Latch Relay - Supply Voltage
10
17
18
8
1550 BK
7730 YE/BK
X424
16
X918
5
1299 GN
10
6
QK2
QK1
J901
J902
A99R Pickup Box Endgate Latch - Right
A99L Pickup Box Endgate Latch - Left
M14A Pickup Box Endgate Lock Actuator
7729 BU/VT
7728 WH/GN
X210
55
54
X4
12
4
F31DR
X3
21
X6
12
19
7291 BN
7292 GY
7294 YE
X410
30
45
X918
21
10
S86 Vehicle Stability Control System Switch
3
6
851 BK/WH
G201
S159E Liftgate Exterior Release Switch - Endgate
(QK2) S158 Liftgate Exterior Release Switch - Auxiliary Endgate
1
2
1850 BK
G406A
G301A

Endgate Schematics Object-ID=6152321 (Power Endgate Controls (QT6))

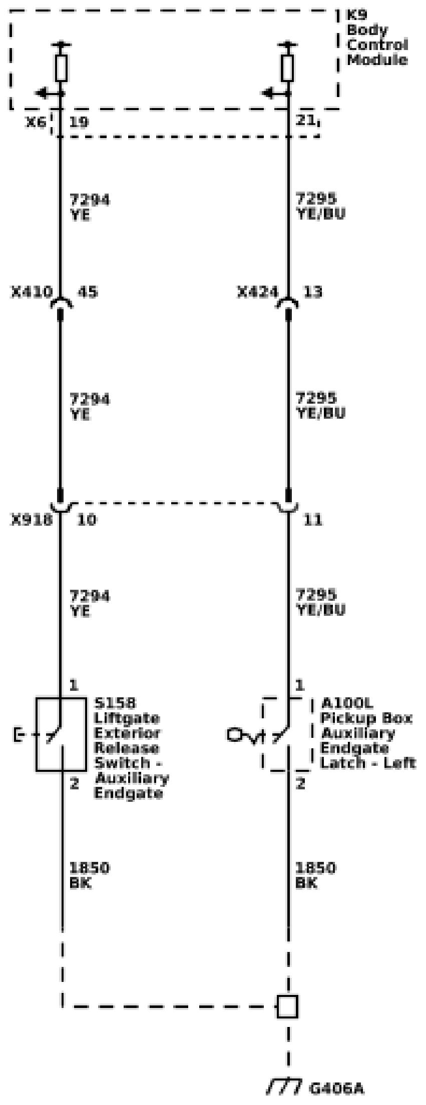

B+
X53AF Body Wiring Harness Junction Block
F20DL 30A
51
4442 RD/VT
X410 14
4442 RD/VT
X918 2
4442 RD/VT
13
B+
4101 BU/VT
4100 WH
4101 BU/VT
4100 WH
15
3
14
2
K194 Rear Gate Module
5V
22
18
21
19
35
36
38
25
1
4685 BU/WH
4683 BN/RD
4686 BN/YE
4687 BK/GN
1577 GN
1590 BU/BK
4689 WH
4690 BN/WH
9
8
4
6
7
2
3
5
1
M
M125 Pickup Box Endgate Power Assist Actuator
1850 BK
G406A
K9 Body Control Module
X5 27
1144 YE
X424 9
1144 YE
X918 20
1144 YE
1
S159E Liftgate Exterior Release Switch - Endgate
2
1850 BK
X2 11
1198 GY
8
S86 Vehicle Stability Control System Switch
162Ω
511Ω
6
851 BK/WH
G201
L O C
D E S C

6150453

Endgate Schematics Object-ID=6152321 (Power Endgate Latches (QT6))

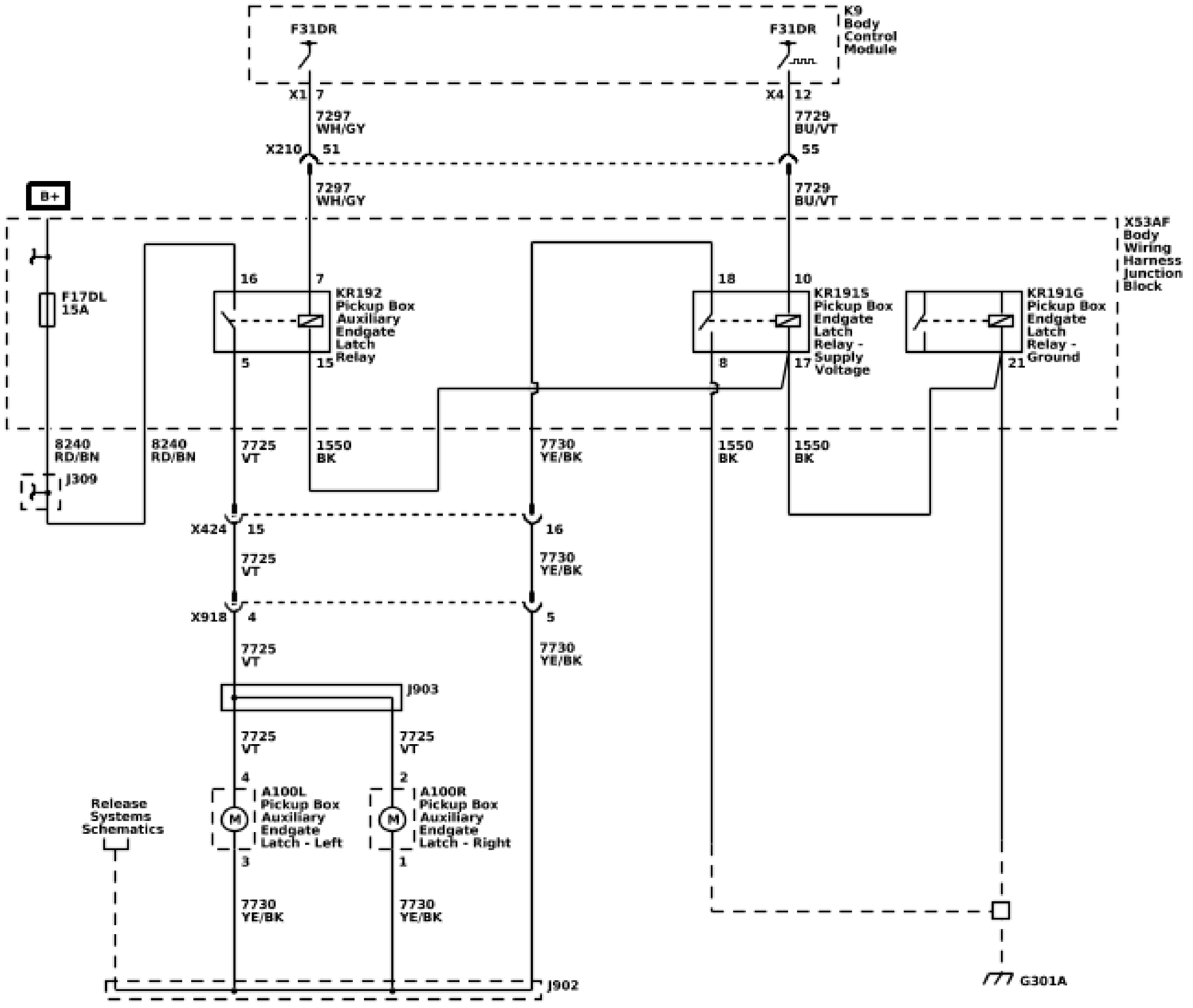

K194 Rear Gate Module
M151R Pickup Box Endgate Cinch Latch Actuator - Right
M151L Pickup Box Endgate Cinch Latch Actuator - Left
NEU
UNLATCH
PRI
SEC
26
10282 BU/BN
6
16
7736 BN
2
23
10283 GN/BU
5
24
10284 VT/WH
3
31
1499 GN
7
M
8
1509 BU
30
1
1575 GY/BK
27
7
8084 WH/GN
7
8
4678 GY/VT
3
5
8085 YE/BK
8
6
10281 BN/GY
2
34
4681 BN
5
6
4682 BU/GY
33
4
4656 BK/VT
28
6150454

Endgate Schematics Object-ID=6152321 (Auxiliary Endgate Latch Controls and Switches (QK2))


K9
Body
Control
Module
X6
19
21
7294
YE
7295
YE/BU
X410
45
X424
13
7294
YE
7295
YE/BU
X918
10
11
7294
YE
7295
YE/BU
1
S158
Liftgate
Exterior
Release
Switch -
Auxiliary
Endgate
2
1
A100L
Pickup Box
Auxiliary
Endgate
Latch - Left
2
1850
BK
1850
BK
G406A

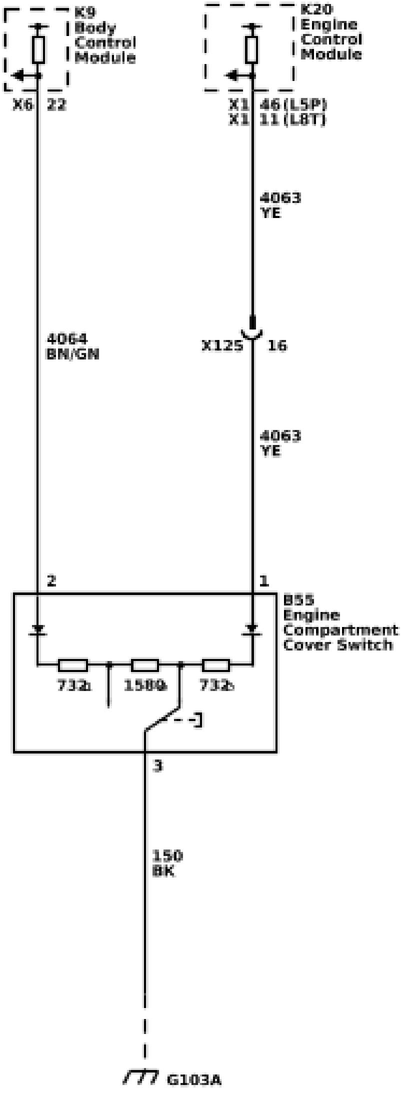
6150455

Endgate Schematics Object-ID=6152321 (Auxiliary Endgate Latch Motors (QK2))


K9 Body Control Module
F31DR
F31DR
X1 7
X4 12
7297 WH/GY
7729 BU/VT
X210 51
55
7297 WH/GY
7729 BU/VT
B+
X53AF Body Wiring Harness Junction Block
F17DL 15A
16
7
KR192 Pickup Box Auxiliary Endgate Latch Relay
5
15
18
10
KR191S Pickup Box Endgate Latch Relay - Supply Voltage
8
17
KR191G Pickup Box Endgate Latch Relay - Ground
21
8240 RD/BN
J309
8240 RD/BN
7725 VT
1550 BK
7730 YE/BK
1550 BK
1550 BK
X424 15
16
7725 VT
7730 YE/BK
X918 4
5
7725 VT
7730 YE/BK
J903
7725 VT
7725 VT
4
2
A100L Pickup Box Auxiliary Endgate Latch - Left
A100R Pickup Box Auxiliary Endgate Latch - Right
3
1
Release Systems Schematics
7730 YE/BK
7730 YE/BK
J902
G301A

6150456

Hood Latch Schematics Object-ID=6152297 (Hood Ajar Switch)


K9
Body
Control
Module
X6 22
4064
BN/GN
K20
Engine
Control
Module
X1 46 (L5P)
X1 11 (L8T)
4063
YE
X125 16
4063
YE
2
1
B55
Engine
Compartment
Cover Switch
732Ω
1580Ω
732Ω
3
150
BK
G103A

6150400

Description and Operation

Door Ajar Indicator Description and Operation

Object-ID=5399824 Owner=Prottenger, Stevie LMD=03-Aug-2021 LMB=Blanzy, Ken

Door Ajar Indicator System Components

The door ajar indicator system consists of the following components:

- Body control module (BCM)
- Instrument cluster
- Driver door latch
- Passenger door latch
- Left rear door latch
- Right rear door latch
- Driver window motor
- Passenger window motor
- Left rear side door window switch
- Right rear side door window switch

Driver and Passenger Door Ajar

The window motor supplies a 12 V signal to the door ajar switch within the door latch, when a door is open the door ajar switch closes pulling the 12 V signal low. When the window motor detects the drop in the 12 V signal circuit, it will then communicate this status to the BCM via local interconnect network (LIN) bus. The BCM communicates with the instrument cluster via serial data message. The instrument cluster, upon receipt of this serial data message, will illuminate the door ajar indicator and also send a serial data message to the radio to activate the door ajar audible warning when the vehicle speed is greater then 8 km/h (5 mph).

Rear Doors Ajar

The rear side door window switches each provide a 12 V signal to their respective door ajar switch signal circuits. The rear door ajar switches are integral to each rear door latch assembly. When a rear door is opened, the normally open door ajar switch closes. With the door ajar switch closed, ground is provided to the door ajar switch signal circuit and the voltage within the signal circuit drops. The rear side door window switches will detect the voltage drop and will send a serial data message to the body control module which will then send a message to the instrument cluster to command the door ajar message

Endgate Description and Operation (QT6)

Object-ID=4940961 Owner=Prottenger, Stevie LMD=17-Aug-2022 LMB=Prottenger, Stevie

System Description

The power endgate system consists of the following components:

- Rear gate module
- Pickup box endgate power assist actuator
- Pickup box endgate position sensor (part of the power assist actuator)
- Interior pickup box endgate control switch (Part of the Instrument panel multifunction switch)
- Exterior pickup box endgate control switch
- Right pickup box endgate latch assembly
- Left pickup box endgate latch assembly
- Keyless entry transmitter
- Remote control door lock receiver

Operation

The power endgate can be commanded to power open by the following methods:

- Pressing the interior pickup box endgate control switch on the center stack
- Pressing the touch pad on the exterior endgate handle (vehicle doors must be unlocked)
- Pressing the endgate button on the RKE transmitter twice and holding until the endgate latches release

The power endgate can be commanded to power close by the following methods:

- Pressing and holding the interior pickup box endgate control switch on the center stack until the endgate is fully closed and latched
- Pressing the touch pad on the exterior endgate handle
- Pressing the endgate button on the RKE transmitter twice and holding until the endgate is fully closed and latched
- Lifting the tailgate at least 10 cm (4 in) above the full close position and holding momentarily

The vehicle must be in Park for any of the power tailgate functions to operate.

The rear gate module will respond to a request by commanding the left and right pickup box endgate latches to release the endgate and activate the pickup box endgate power assist actuator and lower the endgate or to raise and cinch the endgate closed.

Power Latch

The rear gate module continuously monitors power endgate operation and calculates its location and direction of travel from an endgate position sensor (part of the power assist actuator). One input returns the position of the endgate relative to the x-axis and y-axis. The rear gate module then uses these 2 inputs together to calculate its angle relative to the endgate.

The left and right pickup box endgate latches are bi-directional motors and latch or unlatch operation is the result of the direction of the motor rotation. The rear gate module controls the left and right pickup box endgate latches through the control circuits by supplying power and ground in the appropriate polarity. The motor control circuits are monitored by the rear gate module prior to activation for a high or low condition and during motor operation for an insufficient current flow condition. The ratchet, pawl and sector switches are part of the left and right pickup box endgate latches and are used by the rear gate module to determine the state of the latch during the process of latching or unlatching. Each of the latch switch signal circuits are supplied battery voltage and monitored within the rear gate module. The latch switches share a common low reference circuit from the rear gate module and when the switch contacts close the signal circuit goes low and the rear gate module determines the switch to be active. The ratchet, pawl and unlatch switches are inactive when the endgate is closed and will transition to active as the endgate is opened. The sector switch will be inactive when the endgate is closed, during opening of the endgate the sector switch will change to active and back to inactive when the endgate is in the fully open position.

The exterior pickup box endgate control switch signal circuit is supplied battery voltage by the rear gate module. When the switch is pressed the contacts close and the signal circuit goes low, the rear gate module will detect the voltage drop and will command the endgate to release and lower or to power raise the endgate to the closed position.

For vehicles without the optional passive keyless entry, when the exterior pickup box endgate control switch is pressed, the rear gate module will check the status of the vehicle door locks by sending a serial data message to the body control module requesting the door lock status. If the vehicle doors are locked, the rear gate module will ignore the signal from the exterior pickup box endgate control switch. If the vehicle doors are unlocked, the rear gate module will permit the endgate to unlatch and power open when the exterior pickup box endgate control switch is pressed.

For vehicles with the optional passive keyless entry system, the keyless entry control module monitors the proximity of the keyless entry transmitter. If the exterior pickup box endgate control switch is pressed and the keyless entry transmitter is within range, the keyless entry control module will send a serial data message to the rear gate module indicating the presence of the keyless entry transmitter and the rear gate module will permit the endgate to unlatch and power open. If the doors are locked and the keyless entry transmitter is not within range, the rear gate module will ignore the signal from the exterior pickup box endgate control switch.

Manual Endgate Operation

The endgate can be manually closed from the full-open position when the endgate is lifted in a continuous motion. If the endgate motion is stopped between the full-open and half-closed positions, the lift to close feature can engage and power close the endgate. If the touch pad is pressed during power operation, the endgate will stop and allow manual operation. The endgate must be held after stopping, or it will continue to open

Tailgate Release Unavailable Driver Information Center Message

Power Endgate Functions Disabled Without Setting DTCs

The driver information center displays Tailgate Release Unavailable when a thermal inhibit occurs in the latch or drive unit or the position count is out of range.

The power endgate functions will be restored by performing the following actions:

- Closing the endgate which will reset the position counts
- Closing the endgate and removing the F20DL 30A fuse for greater than 5 minutes

Power Endgate Functions Disabled With DTCs Current

The driver information center displays Tailgate Release Unavailable when the rear gate module control module detects a malfunction in the power endgate system and the system is disabled.

Endgate Description and Operation (QT5 Without MultiPro Tailgate)

Object-ID=4940969 Owner=Prottenger, Stevie LMD=03-Aug-2021 LMB=Blanzy, Ken

Endgate Release System Components

- Body control module (BCM)
- Pickup box endgate control switch-interior (Part of the instrument panel multifunction switch)
- Pickup box endgate control switch-exterior
- Pickup box endgate unlatch actuator
- Pickup box endgate unlatch relay

Endgate Release Operation (Without MutiPro Tailgate Option)

Interior Endgate Release Switch

The body control module monitors the voltage level of the endgate unlatch signal circuit so that when the switch is pressed contacts within the switch closes providing a ground path for the endgate unlatch signal circuit, the voltage within the signal circuit is pulled low, the body control module will detect the voltage drop and if the passenger doors are unlocked, will energize the pickup box endgate unlatch relay.

Exterior Endgate Release Switch

The body control module monitors the status of the vehicle doors, if the doors are locked the body control module will ignore the request from the exterior pickup box endgate control switch. If the passenger doors have been commanded to unlock, pressing the exterior pickup box endgate control switch will close contacts within the switch and provide a ground path for the endgate unlatch signal circuit, the body control module will detect the voltage drop and will energize the pickup box endgate unlatch relay.

If the vehicle has been equipped with the passive keyless entry system and the keyless entry transmitter is within 3 feet (1 meter) of the endgate, pressing the exterior pickup box endgate control switch will also function in the same manner but without unlocking the passenger doors. Refer to *Keyless Entry System Description and Operation on page 8-337* for more information on the passive keyless entry system.

Pickup Box Endgate Unlatch actuator

When body control module receives a endgate release command from the exterior pickup box endgate control switch, the body control module applies brief pulse of voltage to the pickup box endgate unlatch relay control circuit, which energizes the coil side of the relay. The switch side of the pickup box endgate unlatch relay then momentarily closes, supplying a brief pulse of battery positive voltage to the pickup box endgate unlatch actuator. The pickup box endgate unlatch actuator is continuously grounded and when it receives the voltage pulse, it will become energized and the latch will activate releasing the endgate so that it may be manually lowered to an open position.

Endgate Description and Operation (QT5 With MultiPro Tailgate)

Object-ID=5050333 Owner=Prottenger, Stevie LMD=03-Aug-2021 LMB=Blanzy, Ken

Endgate Release System Components

- Body control module (BCM)
- Pickup box endgate control switch-interior (Part of the instrument panel multifunction switch)
- Pickup box endgate control switch-exterior
- Left pickup box endgate latch
- Right pickup box endgate latch
- Left pickup box auxiliary endgate latch
- Right pickup box auxiliary endgate latch
- Left pickup box endgate latch relay
- Right pickup box endgate latch relay
- Left pickup box auxiliary endgate latch relay
- Right pickup box auxiliary endgate latch relay

Endgate Release Operation (With MutiPro Tailgate Option)

Interior Endgate Release Switch

The body control module monitors the voltage level of the endgate unlatch signal circuit so that when the switch is pressed contacts within the switch closes providing a ground path for the endgate unlatch signal circuit, the voltage within the signal circuit is pulled low, the body control module will detect the voltage drop and if the passenger doors are unlocked, will energize the left pickup box endgate latch relay and right pickup box endgate latch relay.

Exterior Endgate Release Switch

The body control module monitors the status of the vehicle doors, if the doors are locked the body control module will ignore the request from the exterior pickup box endgate control switch. If the passenger doors have been commanded to unlock, pressing the appropriate exterior pickup box endgate control switch will close contacts within the switch and provide a ground path for the major or minor endgate unlatch signal circuit, the body control module will detect the voltage drop and will energize the appropriate pickup box endgate latch relays.

If the vehicle has been equipped with the passive keyless entry system and the keyless entry transmitter is within 3 feet (1 meter) of the endgate, pressing the exterior pickup box endgate control switch will also function in the same manner but without unlocking the passenger doors. Refer to *Keyless Entry System Description and Operation on page 8-337* for more information on the passive keyless entry system.

Major Pickup Box Endgate

Note: The auxiliary pickup box endgate must be in the latched position before commanding the major pickup box endgate to release. The body control module will disable the major pickup box endgate release function if the auxiliary pickup box endgate is open or ajar.

When body control module receives a major endgate release command from the exterior pickup box endgate control switch, the body control module applies brief pulse of voltage to the left and right pickup box endgate latch relay control circuits, which energizes the coil side of the relays. The switch side of the left and right pickup box endgate latch relay then momentarily closes, supplying a brief pulse of battery positive voltage to the left and right pickup box endgate latches. The left and right pickup box endgate latches will become energized and the latches will activate releasing the major endgate so that it may be manually lowered to an open position.

Minor Pickup Box Endgate

When body control module receives a major endgate release command from the exterior pickup box endgate control switch, the body control module applies brief pulse of voltage to the left and right pickup box auxiliary endgate latch relay control circuits, which energizes the coil side of the relays. The switch side of the left and right pickup box auxiliary endgate latch relay then momentarily closes, supplying a brief pulse of battery positive voltage to the left and right pickup box auxiliary endgate latches. The left and right pickup box auxiliary endgate latches will become energized and the latches will activate releasing the minor endgate so that it may be manually lowered to an open position.

Hood Ajar Indicator Description and Operation

Object-ID=5585567 Owner=Prottenger, Stevie LMD=03-Aug-2021 LMB=Blanzy, Ken

Hood Ajar Switch

The body control module (BCM) applies B+ to the hood ajar signal circuit and monitors the voltage to determine the position of the hood. When the hood is open, the switch is open and voltage remains high. When the hood is closed, the switch is closed and the voltage is pulled low.

The BCM uses the hood ajar switch as a content theft deterrent alarm trigger.

Hood Ajar Indicator/Message

When the hood is ajar, a message is displayed on the DIC or the hood ajar indicator will be illuminated.

Power Door Locks Description and Operation

Object-ID=5436213 Owner=Prottenger, Stevie LMD=03-Aug-2021 LMB=Blanzy, Ken

Door Lock System Components

The power door lock system consists of the following components:

- Driver door lock switch
- Passenger door lock switch
- Left rear door lock switch
- Right rear door lock switch
- Driver front side door window control switch
- Passenger front side door window switch
- Driver front side door latch
- Passenger front side door latch
- Left rear side door latch
- Right rear side door latch
- Exterior door handle switches
- Body control module
- Lighting control module

Door Lock System Controls

The power door lock system can be controlled by any of the following:

- Power door lock switch activation
- Keyless entry lock or unlock command
- Delayed locking command
- Automatic door lock command
- When the OnStar® system is used to unlock the driver door

Door Lock and Unlock Operation

The driver or passenger front side door window control switch will monitor the voltage of their respective door lock switches, when the driver or passenger door lock switch is activated in the lock or unlock position the signal voltage will be pulled low, the corresponding front side door window control switch will detect the voltage drop in the signal circuit and will send a serial data message to the body control module requesting the door lock or unlock command.

The lighting control module will monitor the voltage of the left rear and right rear door lock switches, when the left rear or right rear door lock switch is activated in the lock or unlock position the signal voltage will be pulled low, the lighting control module will detect the voltage drop in the signal circuit and will send a serial data message to the body control module requesting the door lock or unlock command.

The body control module upon receipt of a lock or unlock request, will supply battery voltage to the door lock actuator lock or unlock control circuits. Since the opposite side of the lock actuator is connected to ground through the other lock actuator control circuit, the doors, and fuel filler door will then lock or unlock as commanded.

The following control circuits are used to operate the door lock actuators:

- Driver door unlock only
- Passenger and rear door unlock
- All door lock

This sequence and be modified through the personalization settings

Passive Door Lock/Unlock Operation

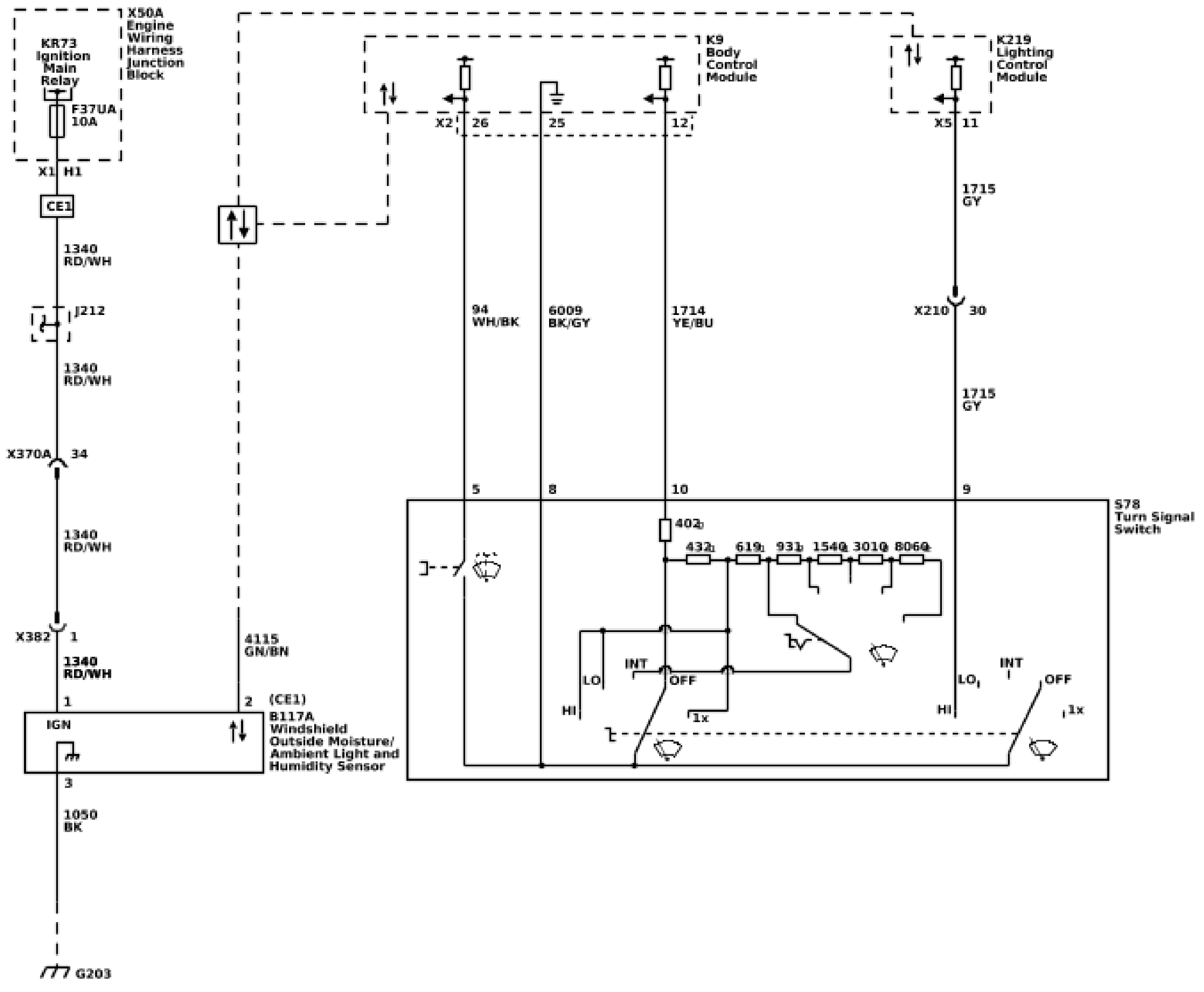
The exterior door handle switch signal circuits provide inputs to the body control module when the exterior door handle switches are activated. These inputs allow the body control module to detect a door lock or a door unlock request. The body control module provides a 7 V signal to each exterior door handle switch via the door handle switch signal circuits. When a door handle switch is pressed, the switch closes and the voltage signal within the signal circuit is pulled to ground. The body control module will detect the voltage drop and a low frequency antenna will transmit a challenge to the keyless entry transmitter. If the challenge is met, the keyless entry transmitter will respond, and the body control module will command the door(s) to be locked or unlocked

Body Systems

Wipers and Washers

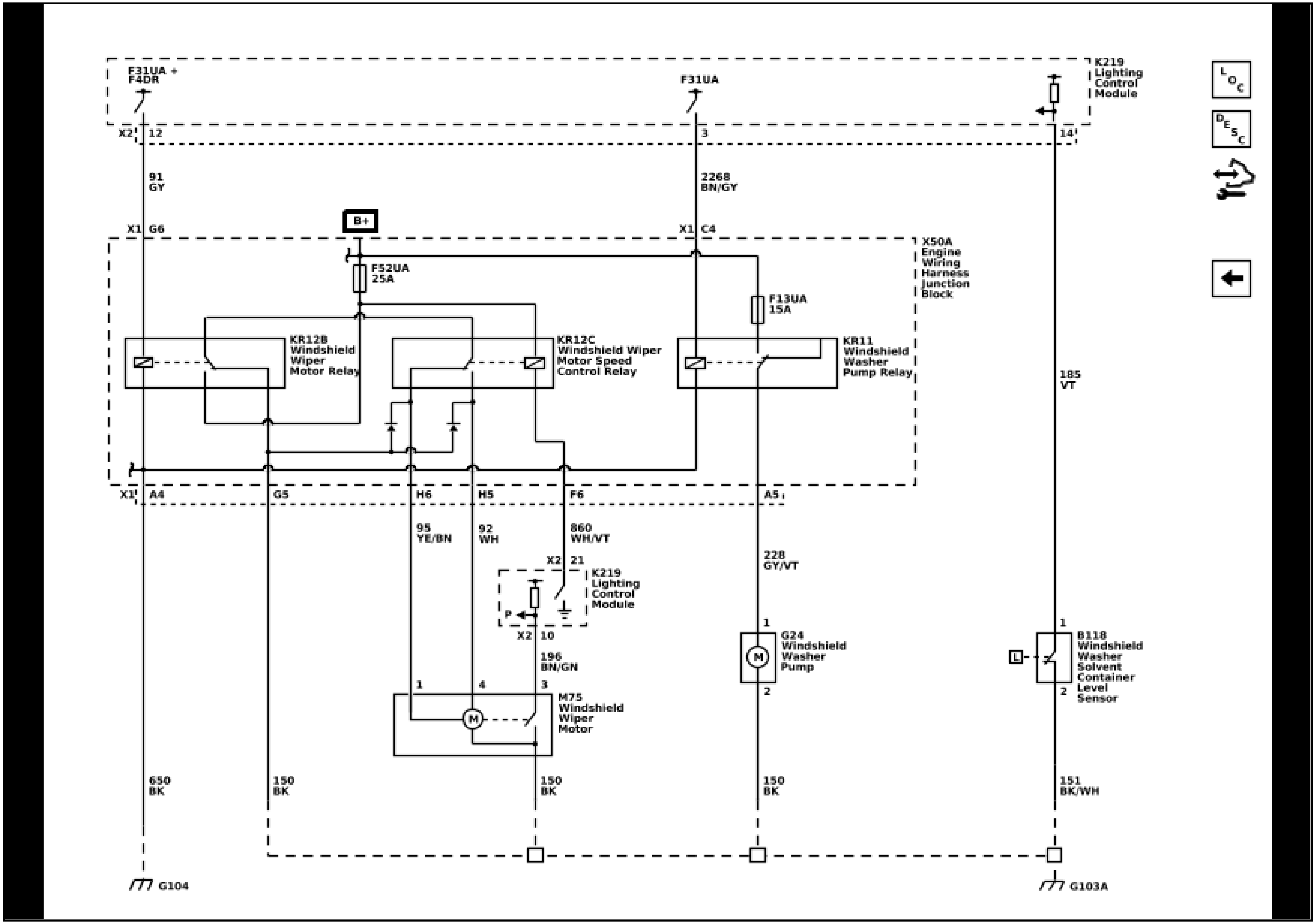
Schematic and Routing Diagrams

Wiper/Washer Schematics Object-ID=6152322 (Controls)


X50A Engine Wiring Harness Junction Block
KR73 Ignition Main Relay
F37UA 10A
X1 H1
CE1
1340 RD/WH
J212
1340 RD/WH
X370A 34
1340 RD/WH
X382 1
1340 RD/WH
1
IGN
2 (CE1)
B117A Windshield Outside Moisture/ Ambient Light and Humidity Sensor
4115 GN/BN
3
1050 BK
G203
K9 Body Control Module
X2 26
25
12
94 WH/BK
6009 BK/GY
1714 YE/BU
K219 Lighting Control Module
X5 11
1715 GY
X210 30
1715 GY
5
8
10
9
S78 Turn Signal Switch
402Ω
432Ω
619Ω
931Ω
1540Ω
3010Ω
8060Ω
HI
LO
INT
OFF
1x
LO
HI
INT
OFF
1x

6150457

Wiper/Washer Schematics Object-ID=6152322 (Wiper Motor and Washer Pump)


F31UA + F4DR
F31UA
K219 Lighting Control Module
X2 12
3
14
91 GY
2268 BN/GY
185 VT
B+
X1 G6
X1 C4
X50A Engine Wiring Harness Junction Block
F52UA 25A
F13UA 15A
KR12B Windshield Wiper Motor Relay
KR12C Windshield Wiper Motor Speed Control Relay
KR11 Windshield Washer Pump Relay
X1 A4
G5
H6
H5
F6
A5
95 YE/BN
92 WH
860 WH/VT
228 GY/VT
X2 21
K219 Lighting Control Module
P
X2 10
196 BN/GN
1
4
3
M75 Windshield Wiper Motor
M
1
G24 Windshield Washer Pump
2
1
L
B118 Windshield Washer Solvent Container Level Sensor
2
650 BK
150 BK
150 BK
150 BK
151 BK/WH
G104
G103A

6150458

Description and Operation

Wiper/Washer System Description and Operation

Object-ID=5206389 Owner=Westfall, Jason LMD=28-Jan-2021 LMB=Westfall, Jason

Front Windshield Wiper Operation

The windshield wipers system allows the driver to clear the vehicle's windshield using a discrete switch or through an automatic rain sensing system. The windshield wiper system functions through a primary control, but also allows redundant high speed-only operation in the event of a system fault. The wiper systems uses the S82 Windshield Wiper/Washer Switch as the primary means of driver control, along with the B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor to modulate intermittent wiper operation. The S82 Windshield Wiper/Washer Switch is a discrete input to the K9 Body Control Module. The K9 Body Control Module communicates with the K219 Lighting Control Module over CAN, and with the B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor over LIN, to control wiper activation.

Low Speed Wiper Operation

With the S82 Windshield Wiper/Washer Switch in the low speed position, the discrete signal circuit to the K9 Body Control Module is pulled down through two resistors in a resistor ladder to a low reference provided by the K9 Body Control Module. The K9 Body Control Module communicates with the K219 Lighting Control Module over CAN, requesting consistent low speed wiping operation. To initiate low speed operation, the K219 Lighting Control Module energizes the KR12B Windshield Wiper Relay. This allows battery voltage from the wiper fuse to be applied through the switched contacts of the KR12B Windshield Wiper Relay, through the normally closed contacts of the KR12C Windshield Wiper Speed Control Relay, to the windshield wiper low speed control circuit of the M75 Windshield Wiper Motor.

Intermittent Wiper Operation

With the S82 Windshield Wiper/Washer Switch in the intermittent position, the discrete signal circuit to the K9 Body Control Module is pulled down through a number of resistors within a resistor ladder to a low reference provided by the K9 Body Control Module. The number of resistors the signal travels through is dependent on the intermittent selection made on the S82 Windshield Wiper/Washer Switch. The K9 Body Control Module interprets this range of voltage pull-down as a request for intermittent wiper activation, with each pull-down voltage value equating an intermittent delay (sensitivity) level. If the rain sense is enabled the K9 Body Control Module communicates with the B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor via LIN. The B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor utilizes windshield optics to determine the amount of water on the windshield and will communicate this info to the K9 Body Control Module, which will vary wiping cadence based on the intermittent sensitivity selection on the S82 Windshield Wiper/Washer Switch and the amount of water on the windshield. If the rain sense is disabled the K9 Body Control will vary the wiping cadence based on a preset amount of time determined by the intermittent delay selection on the S82 Windshield Wiper/Washer Switch. To initiate wiper operation, the K219 Lighting Control Module energizes the KR12B Windshield Wiper Relay. This allows battery voltage from the wiper fuse to be applied through the switched contacts of the KR12B Windshield Wiper Relay, through the normally closed contacts of the KR12C Windshield Wiper Speed Control Relay, to the low speed control circuit of the M75 Windshield Wiper Motor.

High Speed Wiper Operation

With the S82 Windshield Wiper/Washer Switch in the high speed position, the discrete signal circuit to the K9 Body Control Module is pulled down through two resistors in a resistor ladder to a low reference provided by the K9 Body Control Module. The K9 Body Control Module interprets this specific voltage pull-down as a request for wiper activation. In addition to this pull-down signal, a second switch in the S82 Windshield Wiper/Washer Switch is also pulled down to low reference. This signal is a discrete input to the K219 Lighting Control Module. The K219 Lighting Control Module requests wiping operation. To initiate high speed operation, the K219 Lighting Control Module energizes the KR12B Windshield Wiper Relay and grounds the KR12C Windshield Wiper Speed Control Relay. This allows battery voltage from the wiper fuse to be applied through the switched contacts of the KR12B Windshield Wiper Relay, through the switched contacts of the KR12C Windshield Wiper Speed Control Relay, to the windshield wiper motor high speed control circuit of the M75 Windshield Wiper Motor.

Mist (Single Wipe) Operation

The mist (single wipe) position is a momentary switch position that will return the S82 Windshield Wiper/Washer Switch to the off position as soon as the switch is released. With the S82 Windshield Wiper/Washer Switch in the mist (single wipe) position, the discrete signal circuit to the K9 Body Control Module is pulled down through two resistors in a resistor ladder to a low reference provided by the K9 Body Control Module. The K9 Body Control Module interprets this specific voltage pull-down as a request for wiper activation. The K9 Body Control Module communicates with the K219 Lighting Control Module via CAN, requesting consistent low speed wiping operation as long as the S82 Windshield Wiper/Washer Switch is held in the mist (single wipe) position. If the mist (single wipe) position is only briefly selected, the K9 Body Control Module will request only a single wipe.

Wiper Park Operation

With the S82 Windshield Wiper/Washer Switch in the off position, the discrete signal circuit to the K9 Body Control Module is pulled down through one resistor in a resistor ladder to a low reference provided by the K9 Body Control Module. The K9 Body Control Module interprets this specific voltage pull-down as a request to stop wiper activation. The K9 Body Control Module communicates with the K219 Lighting Control Module via CAN, requesting wiper operation stop. At this time, the K219 Lighting Control Module will deactivate the KR12B Windshield Wiper Relay and KR12C Windshield

Wiper Speed Control Relay. The relay contacts will switch back to their normally closed position and will apply ground to the wiper motor power inputs through the normally closed contacts of the wiper relays. This deactivates and dynamically brakes the wiper motor in the park position. When the wiper switch is turned to the OFF position while the wiper motor is somewhere in mid-cycle, the K219 Lighting Control Module will continue to operate the motor until the wipers reach the park position. If the ignition is turned OFF while the wipers are in mid-cycle, the wipers will stop immediately, regardless of position. The K219 Lighting Control Module will park the wipers next time the ignition is turned ON.

The windshield wiper system consists of the following electrical components:

- S82 Windshield Wiper/Washer Switch
- K9 Body Control Module
- K219 Lighting Control Module
- KR12B Windshield Wiper Relay
- KR12C Windshield Wiper Speed Control Relay
- B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor
- M75 Windshield Wiper Motor

Front Windshield Wiper Components

S82 Windshield Wiper/Washer Switch

The S82 Windshield Wiper/Washer Switch is the primary input to the K9 Body Control Module for the driver to control windshield wiper operation. The S82 Windshield Wiper/Washer Switch also provides discrete input to the K219 Exterior Lighting Control Module and M75 Windshield Wiper Motor during high speed wiper operation.

The S82 Windshield Wiper/Washer Switch contains three individual internal switch. One switch changes between mist (single wipe), off, intermittent, low speed, and high speed selection. The second switch changes with differing intermittent sensitivity selection. The third switch is only active when high speed wiper operation is selected. A resistor ladder is also used to determine switch selection and intermittent sensitivity selection. The high speed switch does not utilize the resistor ladder.

The K9 Body Control Module provides the S82 Windshield Wiper/Washer Switch with ground through a single low reference circuit and monitors the switch position through a single signal circuit. Voltage is applied by the K9 Body Control Module to this signal circuit and voltage drop is monitored to determine switch selection. This voltage drop will vary depending on the number of resistors in the resistor ladder, which changes depending on switch position. In the off position, current flows through a single resistor. In the mist (single wipe), low speed, and high speed position, current flows through two resistors. In the intermittent position, current flows through three or more resistors, depending on the intermittent sensitivity selected.

The S82 Windshield Wiper/Washer Switch provides a discrete switch input to the K219 Lighting Control Module during high speed wiper operation. Voltage is applied by the K219 Lighting Control Module to this signal circuit and voltage drop is monitored to determine switch selection. When high speed operation is selected, the signal circuit is pulled to ground (low reference).

K9 Body Control Module

The K9 Body Control Module will send a CAN message to the K219 Lighting Control Module to request wiper operation. The K9 Body Control Module responds to input requests from the S82 Windshield Wiper/Washer Switch. The K9 Body Control Module provides a constant ground for the S82 Windshield Wiper/Washer Switch and monitors a signal circuit to determine the requested windshield wiper position.

The K9 Body Control Module communicates with the B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor via LIN. Messages are received from the B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor to indicate the amount of water on the windshield.

K219 Lighting Control Module

The K219 Lighting Control Module controls the wiper motor via two PCB relays (KR12B Windshield Wiper Relay and KR12C Windshield Wiper Speed Control Relay). The K219 Lighting Control Module receives a message from K9 Body Control Module over CAN to determine what type of wiper operation is requested.

KR12B Windshield Wiper Relay

The KR12B Windshield Wiper Relay supplies B+ to the M75 Windshield Wiper Motor and is controlled by the K219 Lighting Control Module. The coil side of the relay receives a constant chassis ground and the switch side receives a constant B+. When wiper operation is requested, the K219 Lighting Control Module will provide voltage to the coil side of the relay. This will energize the relay, closing the high current contact, and supply B+ to the M75 Windshield Wiper Motor through the KR12C Windshield Wiper Speed Control Relay, enabling wiper operation.

KR12C Windshield Wiper Speed Control Relay

The KR12C Windshield Wiper Speed Control Relay controls B+ to the M75 Windshield Wiper Motor and is controlled by the K219 Lighting Control Module. The coil side of the relay receives a ground controlled by the K219 Lighting Control Module. The switch side of the relay receives B+ through the KR12B Windshield Wiper Relay. When high speed wiper operation is requested, the K219 Lighting Control Module will provide ground to the coil side of the relay. This will energize the relay, closing the high current contact, and supply the B+ to the M75 Windshield Wiper Motor high speed control, enabling high speed wiper operation.

B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor

Note: Due to the sensitivity of the sensor, the wipers may swipe once upon start up or rapid lighting changes.

The B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor utilizes an internal infrared LED and an optic sensor to determine the amount of water on the windshield. The infrared LED bounces infrared light against the inside of the windshield. The optic sensor measures the amount of light returned after bouncing off the windshield. With a dry windshield, all light bounced off the windshield is returned to the optic sensor. As water accumulates on the windshield, the light input to the optic sensor is diffused and reduced. The amount of light reduction corresponds directly to the amount of water on the windshield. The B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor interprets the amount of light returned and communicates this info to the K9 Body Control Module, which will control intermittent wiper operation based on the sensitivity selection of the S82 Windshield Wiper/Washer Switch and the amount of water on the windshield.

M75 Windshield Wiper Motor

The M75 Windshield Wiper Motor receives a constant chassis ground. B+ is controlled by the KR12B Windshield Wiper Relay and KR12C Windshield Wiper Speed Control Relay being operated by the K219 Lighting Control Module.

The M75 Windshield Wiper Motor includes a DC motor and an internal position switch to indicate the wiper park position. When wiper operation is requested, the DC motor spins. The spinning motor is directed to a wiping motion through the windshield wiper transmission. When wiper operation is no longer required, the M75 Windshield Wiper Motor will continue spinning until the internal position switch indicates it is in the park position.

Rear Window Wiper Operation

The rear window wiper system allows the driver to clear the vehicle’s rear window using a discrete switch. The rear wiper systems uses the S82 Windshield Wiper/Washer Switch as the means of control. The S82 Windshield Wiper/Washer Switch is a discrete input to the K9 Body Control Module. The K9 Body Control Module communicates with the M45 Rear Wiper Motor via LIN to control wiper activation.

Low Speed Wiper Operation

With the S82 Windshield Wiper/Washer Switch in the low speed position, the discrete signal circuit to the K9 Body Control Module is pulled down through one resistor in a resistor ladder to a low reference provided by the K9 Body Control Module. The K9 Body Control Module communicates with the M45 Rear Wiper Motor over LIN, requesting consistent low speed wiping operation.

Intermittent Wiper Operation

With the S82 Windshield Wiper/Washer Switch in the intermittent position, the discrete signal circuit to the K9 Body Control Module is pulled down through a two resistors in a resistor ladder to a low reference provided by the K9 Body Control Module. The K9 Body Control Module communicates with the M45 Rear Wiper Motor over LIN, requesting consistent intermittent wiping operation. The K9 Body Control will vary the wiping cadence based on a preset amount of time.

Mist (Single Wipe) Operation

The mist (single wipe) position is a momentary switch position that will return the S82 Windshield Wiper/Washer Switch to the off position as soon as the switch is released. With the S82 Windshield Wiper/Washer Switch in the mist (single wipe) position, the discrete signal circuit to the K9 Body Control Module is pulled down through three resistors in a resistor ladder to a low reference provided by the K9 Body Control Module. The K9 Body Control Module interprets this specific voltage pull-down as a request for wiper activation. The K9 Body Control Module communicates with the M45 Rear Wiper Motor via LIN, requesting consistent low speed wiping operation as long as the S82 Windshield Wiper/Washer Switch is held in the mist (single wipe) position. If the mist (single wipe) position is only briefly selected, the K9 Body Control Module will request only a single wipe.

Wiper Park Operation

With the S82 Windshield Wiper/Washer Switch in the off position, the discrete signal circuit to the K9 Body Control Module is opened. The K9 Body Control Module interprets this as a request to stop wiper activation. The K9 Body Control Module communicates with the M45 Rear Wiper Motor via LIN, requesting wiper operation stop. The M45 Rear Wiper Motor will park the rear window wiper in their lowest position. When the wiper switch is turned to the OFF position while the wiper motor is somewhere in mid-cycle, the K9 Body Control Module will continue to operate the motor until the wiper reaches the park position. If the ignition is turned OFF while the wipers are in mid-cycle, the wipers will stop immediately, regardless of position. The K9 Body Control Module will park the wipers next time the ignition is turned ON.

The rear window wiper system consists of the following electrical components:

- S82 Windshield Wiper/Washer Switch
- K9 Body Control Module
- M45 Rear Wiper Motor

Rear Window Wiper Components

S82 Windshield Wiper/Washer Switch

The S82 Windshield Wiper/Washer Switch is the primary input to the K9 Body Control Module for the driver to control rear window wiper operation.

The S82 Windshield Wiper/Washer Switch contains one individual internal switch used to request mist (single wipe) off, intermittent, and low speed selection.

The K9 Body Control Module provides the S82 Windshield Wiper/Washer Switch with ground through a single low reference circuit and monitors the switch position through a single signal circuit. Voltage is applied by the K9 Body Control Module to this signal circuit and voltage drop is monitored to determine switch selection. This voltage drop will vary depending on the number of resistors in the resistor ladder, which changes depending on switch position. In the off position, current doesn’t flow. In the mist (single wipe) position current flows through three resistors, in the intermittent speed position current flows through two resistors, and in the low speed position, current flows through one resistor.

K9 Body Control Module

The K9 Body Control Module will send a LIN message to the M45 Rear Wiper Motor to request wiper operation. The K9 Body Control Module responds to input requests from the S82 Windshield Wiper/Washer

Switch. The K9 Body Control Module provides a constant ground for the S82 Windshield Wiper/Washer Switch and monitors a signal circuit to determine the requested windshield wiper position.

M45 Rear Wiper Motor

The M45 Rear Wiper Motor receives a constant B+ and chassis ground.

The M45 Rear Wiper Motor includes a DC motor and an internal position switch to indicate the wiper park position. When wiper operation is requested, the DC motor spins. The spinning motor is directed to a wiping motion through the windshield wiper transmission. When wiper operation is no longer required, the M45 Rear Wiper Motor will continue spinning until the internal position switch indicates it is in the park position.

Windshield Washer Operation

The windshield washer system allows the driver to clean the vehicle’s windshield or rear window using a discrete switch. The washer system uses the S82 Windshield Wiper/Washer Switch as the primary means of driver control. The S82 Windshield Wiper/ Washer Switch is a discrete input to the K9 Body Control Module. The K9 Body Control Module communicates with the K219 Lighting Control Module over CAN to control G24 Windshield Washer Pump activation. The K9 Body Control Module also communicates with the K219 Lighting Control Module to control B+ to the M75 Windshield Wiper Motor during operation.

The windshield wiper system consists of the following electrical components:

- S82 Windshield Wiper/Washer Switch
- K9 Body Control Module
- K219 Lighting Control Module
- KR12B Windshield Wiper Relay
- KR6 Rear Window Washer Pump Relay
- KR11 Windshield Washer Pump Relay
- G24 Windshield Washer Pump
- M45 Rear Wiper Motor
- M75 Windshield Wiper Motor
- B118B Windshield Washer Fluid Level Switch

Windshield Washer Components

S82 Windshield Wiper/Washer Switch

The S82 Windshield Wiper/Washer Switch is the primary input to the K9 Body Control Module for the driver to control washer operation.

For front washers, the K9 Body Control Module provides the S82 Windshield Wiper/Washer Switch with ground through a single low reference circuit and monitors the two switch positions through two signal circuits. Voltage is applied by the K9 Body Control Module to the signal circuits and voltage drop is monitored to determine switch selection. For front washers, the S82 Windshield Wiper/Washer Switch contains an internal switch dedicated to front windshield washer operation. When the switch is closed, the signal circuit is pulled to ground, indicating front washer operation is requested. For rear washers, the switch is part of a resistor ladder. The voltage drop will vary depending on the number of resistors in the resistor ladder. When the switch is closed, the signal circuit is pulled to ground through three resistors, indicating rear washer operation is requested.

K9 Body Control Module

The K9 Body Control Module responds to input requests from the S82 Windshield Wiper/Washer Switch. The K9 Body Control Module provides a constant ground for the S82 Windshield Wiper/Washer Switch and monitors a signal circuit to determine the requested windshield wiper position.

When front washer operation is requested, the K9 Body Control Module will send a CAN message to the K219 Lighting Control Module to enable the G24 Windshield Washer Pump through the KR11 Windshield Washer Pump Relay, as well as supply B+ to the M75 Windshield Wiper Motor for low speed wiper operation.

When rear washer operation is requested, the K9 Body Control Module will send a CAN message to the K219 Lighting Control Module to enable the G24 Windshield Washer Pump through the KR6 Rear Window Washer Pump Relay, as well as send a signal through LIN to the M45 Rear Wiper Motor for low speed wiper operation.

K219 Lighting Control Module

The K219 Lighting Control Module controls B+ to the G24 Windshield Washer Pump. When washer operation is requested from a CAN message from the K9 Body Control Module, the K219 Lighting Control Module will apply voltage via a high side driver to the KR11 Windshield Washer Pump Relay or the KR6 Rear Window Washer Pump Relay. The K219 Lighting Control Module also controls B+ to the M75 Windshield Wiper Motor. When washer operation is requested, the K219 Lighting Control Module will apply voltage via a high side driver to the KR12B Windshield Wiper Relay.

The K219 Lighting Control Module also monitors the B118B Windshield Washer Fluid Level Switch through a discrete signal circuit.

KR12B Windshield Wiper Relay

The KR12B Windshield Wiper Relay supplies B+ to the M75 Windshield Wiper Motor and is controlled by the K219 Lighting Control Module. The coil side of the relay receives a constant chassis ground and the switch side receives a constant B+. When wiper operation is requested, the K219 Lighting Control Module will provide voltage to the coil side of the relay. This will energize the relay, closing the high current contact, and supply B+ to the M75 Windshield Wiper Motor through the KR12C Windshield Wiper Speed Control Relay, enabling wiper operation.

KR6 Rear Window Washer Pump Relay

The KR6 Rear Window Washer Pump Relay supplies B + to the G24 Windshield Washer Pump and is controlled by the K219 Lighting Control Module. The coil side of the relay receives a constant chassis ground and the switch side receives a constant B+. When washer operation is requested, the K219 Lighting Control Module will provide voltage to the coil side of the relay. This will energize the relay, closing the high current contact, and supply B+ to the G24 Windshield Washer Pump, enabling washer pump operation.

KR11 Windshield Washer Pump Relay

The KR11 Windshield Washer Pump Relay supplies B+ to the G24 Windshield Washer Pump and is controlled by the K219 Lighting Control Module. The coil side of the relay receives a constant chassis ground and the switch side receives a constant B+. When wiper operation is requested, the K219 Lighting Control Module will provide voltage to the coil side of the relay. This will energize the relay, closing the high current contact, and supply B+ to the G24 Windshield Washer Pump, enabling washer pump operation.

G24 Windshield Washer Pump

The G24 Windshield Washer Pump is a reversible motor that receives a ground through the non activated relay. B+ is controlled by the KR11 Windshield Washer Pump Relay for front washer operation, or the KR6 Rear Window Washer Pump Relay for rear washer operation. With voltage applied, a DC motor spins, connecting and pressurizing washer fluid from the washer fluid reservoir. The pressurized washer fluid is deposited on the windshield or rear window through a series of lines and nozzles.

M45 Rear Window Wiper Motor

The M45 Rear Wiper Motor communicates with the K9 Body Control Module via LIN and responds to requests to turn the rear wipers on and off. The M45 Rear Wiper Motor receives a constant B+ and chassis ground. In operation, the M45 Rear Wiper Motor monitors LIN messages to determine when washer operation is requested. The M45 Rear Wiper Motor will wipe at low speed when washer operation is requested.

The M45 Rear Wiper Motor includes a DC motor and an internal position switch to indicate the wiper park position. When washer operation is requested, the DC motor spins. When wiper operation is no longer required, the M45 Rear Wiper Motor will continue spinning until the internal position switch indicates it is in the park position.

M75 Windshield Wiper Motor

The M75 Windshield Wiper Motor receives a constant chassis ground. B+ is controlled by the KR12B Windshield Wiper Relay and KR12C Windshield Wiper Speed Control Relay being operated by the K219 Lighting Control Module. The M75 Windshield Wiper Motor will wiper at low speed when washer operation is requested.

The M75 Windshield Wiper Motor includes a DC motor and an internal position switch to indicate the wiper park position. When wiper operation is requested, the DC motor spins. The spinning motor is directed to a wiping motion through the windshield wiper transmission. When wiper operation is no longer required, the M75 Windshield Wiper Motor will continue spinning until the internal position switch indicates it is in the park position.

B118B Windshield Washer Fluid Level Switch

The B118B Windshield Washer Fluid Level Switch receives a constant chassis ground. A signal circuit is monitored by the K219 Lighting Control Module. The K219 Lighting Control Module applies voltage to the signal circuit. When the B118B Windshield Washer Fluid Level Switch is closed, voltage on the signal circuit is pulled to ground, indicating fluid in the washer fluid reservoir.

BLANK

Section 3

Brakes

Park Brake 3-3
  Description and Operation 3-3
    Electronic Parking Brake Description 3-3

BLANK

Brakes

Park Brake

Description and Operation

Electronic Parking Brake Description

Object-ID=5786795 Owner=Roy, Ronald LMD=29-Mar-2021 LMB=Roy, Ronald

Vehicles with the electric parking brake have a switch in the center console or on the dash, which takes the place of the manual parking brake system, the foot pedal and release handle. In case of insufficient electrical power, the electric parking brake cannot be applied or released.

Electronic Brake Control Module/Brake System Control Module

The parking brake function is integrated into the Electronic Brake Control Module/Brake System Control Module. The module contains the logic for applying and releasing the parking brake when commanded by the Park Brake Switch.

When the Park Brake Switch is pulled, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the apply control circuits and ground to the release control circuits which will cause the left and right park brake actuators to activate causing the park brakes to engage. When the Park Brake Switch is pressed, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the released control circuits and ground to the apply control circuits which will cause the left and right park brake actuators to activate causing the park brakes to release. In some vehicles, the Park Brake Switch is a push-button style switch. When the switch is pressed, the park brakes are commanded to either apply or release based off of their current position.

The Electronic Brake Control Module/Brake System Control Module will diagnose the park brake motor circuits to verify that they are functioning properly. The park brake motor circuits are used to command actuator motor operation, which will apply and release the parking brake. These circuits are used to activate the actuator, which applies or releases park brake shoes.

The Park Brake Motor Position Sensor is an internal sensor to the park brake actuator, this sensor is used to monitor the park brake motor position.

Electric Parking Brake Apply

The electric parking brake can be applied any time the vehicle is stopped or in motion. The electric parking brake is applied by momentarily operating the park brake control switch. The red park brake light will momentarily flash while the parking brake is being applied. Once fully applied, the red park brake light will turn on. If the electric parking brake is applied while the vehicle is in motion, the vehicle will decelerate as long as the switch is being operated. If the switch is operated until the vehicle comes to a stop, the park brake will remain applied.

If the red park brake light is flashing, the electric parking brake is only partially applied or released, or there is a problem with the electric parking brake. A DIC message will display.

The vehicle may automatically apply the electric parking brake in some situations when the vehicle is not moving. This is normal, and is done to periodically check the correct operation of the electric parking brake system.

Electric Parking Brake Release

To release the electric parking brake, turn the ignition switch to the ON or RUN position, apply and hold the brake pedal, and push down momentarily on the park brake control switch. When the electric parking brake is released the red park brake light turns off.

Automatic Electric Parking Brake Release

The parking brake will automatically release if the vehicle is running, placed into gear, and an attempt is made to drive away. Avoid rapid acceleration when the parking brake is applied to preserve parking brake lining life.

BLANK

Section 4

Driver Information and Entertainment

Image Display Cameras 4-3
  Schematic and Routing Diagrams 4-3
    Image Display Camera Schematics 4-4
  Description and Operation 4-8
    Rearview Camera Full Display Mirror Description and Operation 4-8
    Rear Vision Camera Description and Operation 4-8
    Surround Vision Camera Description and Operation 4-8

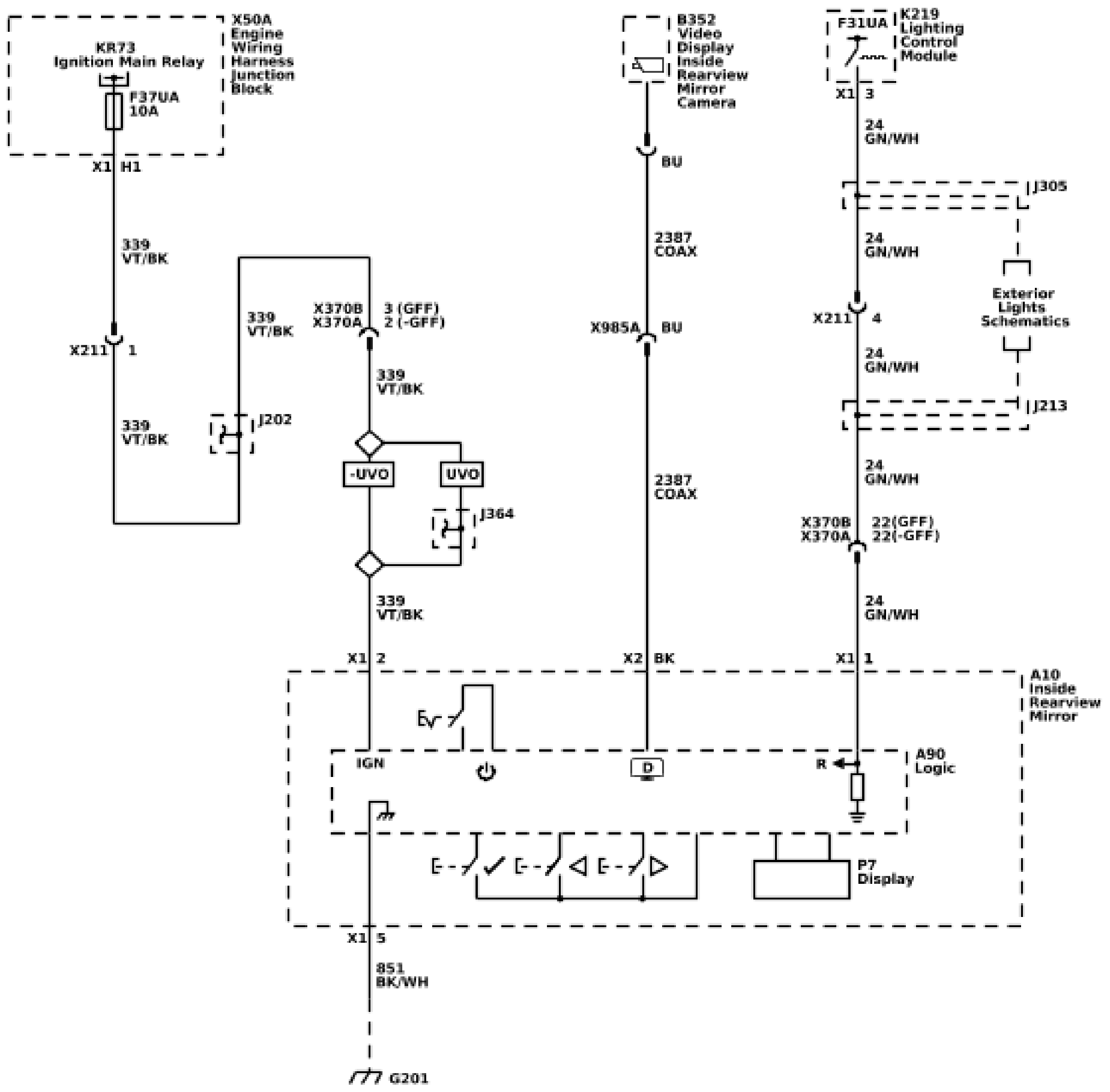
BLANK

Driver Information and Entertainment

Image Display Cameras

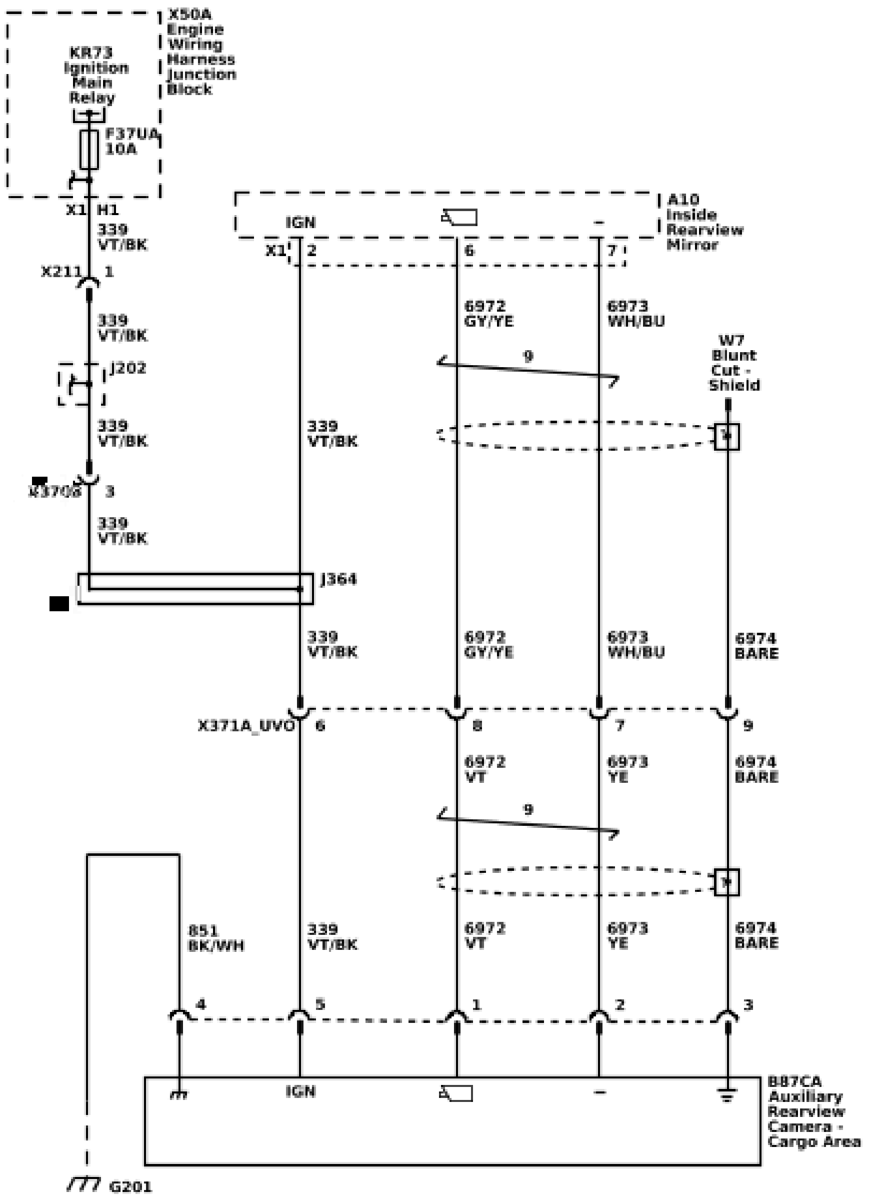
Schematic and Routing Diagrams

Image Display Camera Schematics Object-ID=6152339 (Inside Rearview Mirror Camera (DRZ))


X50A Engine Wiring Harness Junction Block
KR73 Ignition Main Relay
F37UA 10A
X1 H1
339 VT/BK
X211 1
339 VT/BK
J202
339 VT/BK
X370B X370A
3 (GFF) 2 (-GFF)
339 VT/BK
-UVO
UVO
J364
339 VT/BK
X1 2
B352 Video Display Inside Rearview Mirror Camera
BU
2387 COAX
X985A BU
2387 COAX
X2 BK
F31UA
K219 Lighting Control Module
X1 3
24 GN/WH
J305
24 GN/WH
X211 4
Exterior Lights Schematics
24 GN/WH
J213
24 GN/WH
X370B X370A
22(GFF) 22(-GFF)
24 GN/WH
X1 1
A10 Inside Rearview Mirror
A90 Logic
IGN
D
R
P7 Display
X1 5
851 BK/WH
G201

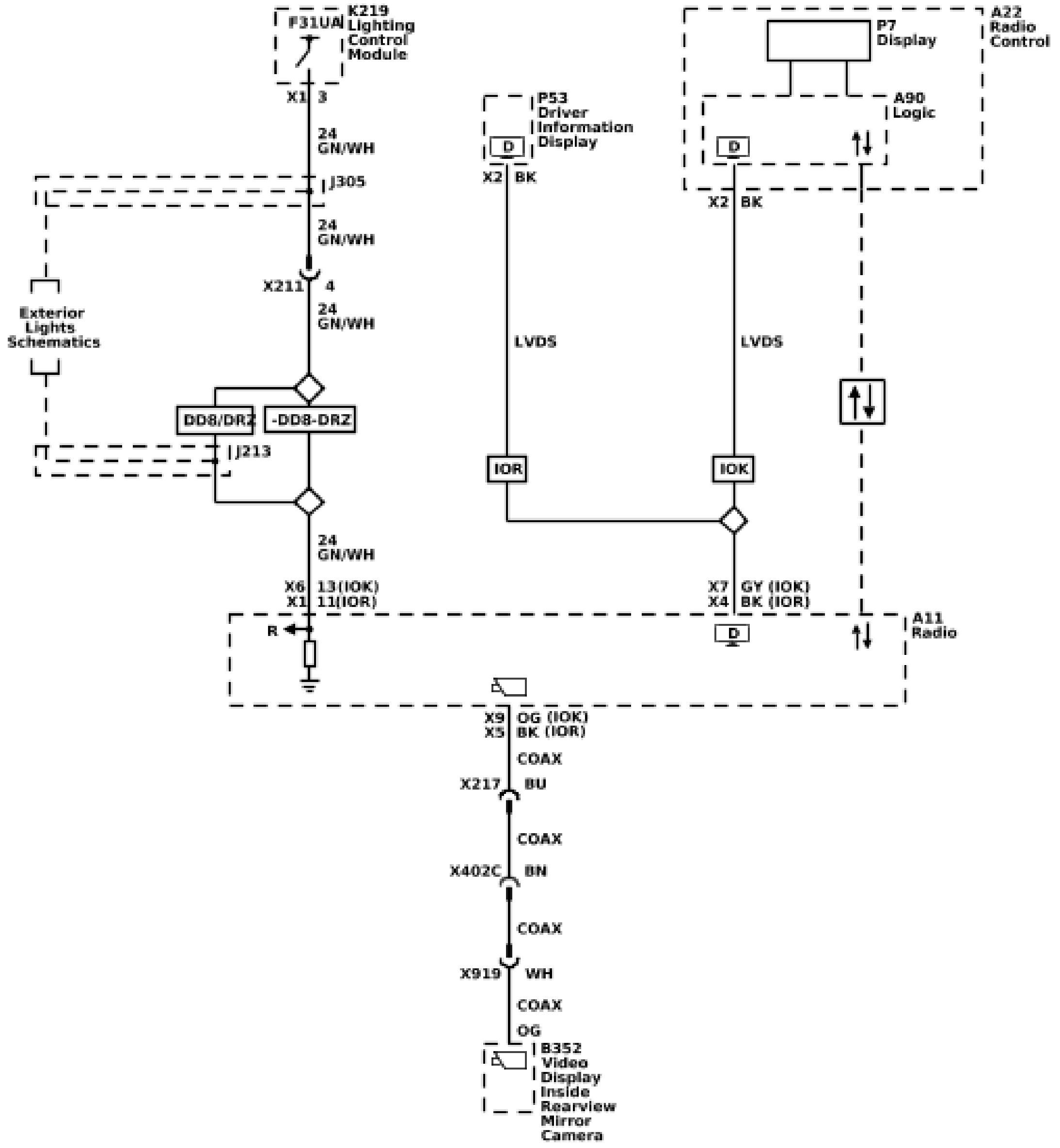
6150485

Image Display Camera Schematics Object-ID=6152339 (Inside Rearview Mirror Camera (UVO))


X50A Engine Wiring Harness Junction Block
KR73 Ignition Main Relay
F37UA 10A
X1 H1
339 VT/BK
X211 1
339 VT/BK
J202
339 VT/BK
X3708 3
339 VT/BK
J364
A10 Inside Rearview Mirror
IGN
X1 2
6
7
339 VT/BK
6972 GY/YE
6973 WH/BU
9
W7 Blunt Cut - Shield
339 VT/BK
6972 GY/YE
6973 WH/BU
6974 BARE
X371A_UVO 6
8
7
9
6972 VT
6973 YE
6974 BARE
9
851 BK/WH
339 VT/BK
6972 VT
6973 YE
6974 BARE
4
5
1
2
3
IGN
B87CA Auxiliary Rearview Camera - Cargo Area
G201

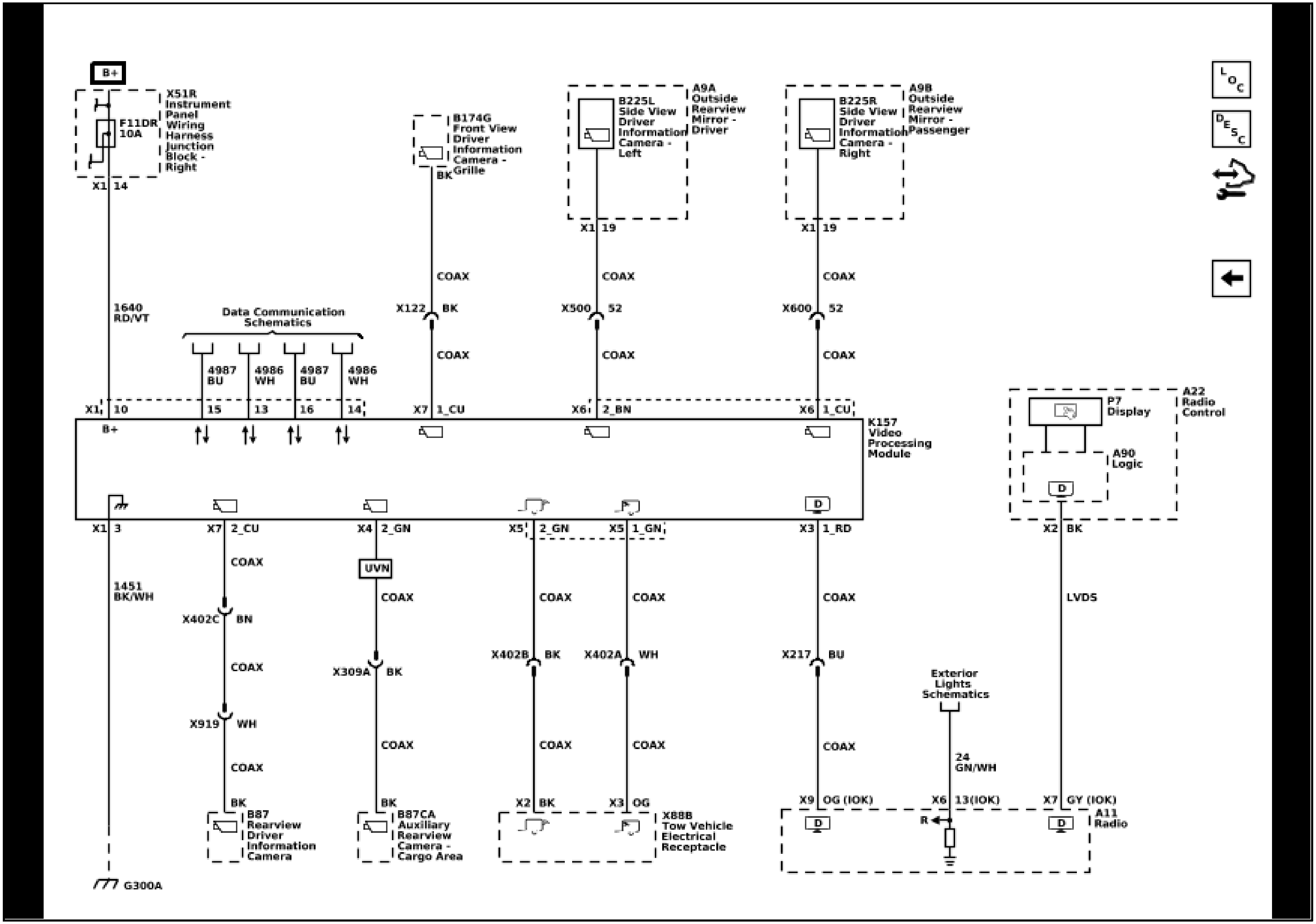
6150556

Image Display Camera Schematics Object-ID=6152339 (Rearview Driver Information Camera (UVB))


K219 Lighting Control Module
F31UA
X1 3
24 GN/WH
J305
24 GN/WH
X211 4
24 GN/WH
Exterior Lights Schematics
DD8/DRZ
-DD8-DRZ
J213
24 GN/WH
X6 13(IOK)
X1 11(IOR)
R
P53 Driver Information Display
D
X2 BK
LVDS
IOR
A22 Radio Control
P7 Display
A90 Logic
D
X2 BK
LVDS
IOK
X7 GY (IOK)
X4 BK (IOR)
D
A11 Radio
X9 OG (IOK)
X5 BK (IOR)
COAX
X217 BU
COAX
X402C BN
COAX
X919 WH
COAX
OG
B352 Video Display Inside Rearview Mirror Camera

6150486

Image Display Camera Schematics Object-ID=6152339 (Surround Vision (UV2))


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F11DR 10A
X1 14
1640 RD/VT
X1 10
B+
Data Communication Schematics
4987 BU
4986 WH
4987 BU
4986 WH
15
13
16
14
B174G Front View Driver Information Camera - Grille
BK
COAX
X122 BK
COAX
X7 1_CU
B225L Side View Driver Information Camera - Left
A9A Outside Rearview Mirror - Driver
X1 19
COAX
X500 52
COAX
X6 2_BN
B225R Side View Driver Information Camera - Right
A9B Outside Rearview Mirror - Passenger
X1 19
COAX
X600 52
COAX
X6 1_CU
K157 Video Processing Module
A22 Radio Control
P7 Display
A90 Logic
D
X2 BK
LVDS
X1 3
1451 BK/WH
G300A
X7 2_CU
COAX
X402C BN
COAX
X919 WH
COAX
BK
B87 Rearview Driver Information Camera
X4 2_GN
UVN
COAX
X309A BK
COAX
BK
B87CA Auxiliary Rearview Camera - Cargo Area
X5 2_GN
COAX
X402B BK
COAX
X2 BK
X5 1_GN
COAX
X402A WH
COAX
X3 OG
X88B Tow Vehicle Electrical Receptacle
X3 1_RD
COAX
X217 BU
COAX
X9 OG (IOK)
Exterior Lights Schematics
24 GN/WH
X6 13(IOK)
R
X7 GY (IOK)
A11 Radio
LOC
DESC
6150487

Description and Operation

Rearview Camera Full Display Mirror Description and Operation

Object-ID=4709938 Owner=Lumsden, Grant LMD=18-Jun-2018 LMB=Lumsden, Grant

If equipped, full display mirror provides a wider field of view than normally seen from the inside rearview mirror to assist when driving and changing lanes. When the tab under the inside rearview mirror is pulled rearward, a view of the area behind the vehicle displays on the mirror. The inside rearview camera full display mirror is connected to the outside rearview camera via a shielded coaxial cable.

When the tab under the inside rearview mirror is pulled rearward, a view of the area behind the vehicle displays on the mirror.

Adjust the rearview mirror for a clear view of the area behind the vehicle before turning on full display mirror. Use the three buttons on the bottom of the mirror to adjust the brightness, zoom, and tilt of the display. Make sure the light sensor is not covered when adjusting the brightness.

The inside rearview camera full display mirror may not work properly or display a clear image if:.

- It is dark.
- The sun or the beam of headlamps are shining directly into the camera lens.
- Ice, snow, mud, or anything else builds up on the camera lens. Clean the lens, rinse it with water, and wipe it with a soft cloth.

When the mirror detects that the camera is not sending a valid video signal, it “blue screens” with a “no video” decal for 3 seconds, then reverts back to the mirror.

Rear Vision Camera Description and Operation

Object-ID=4900679 Owner=Lumsden, Grant LMD=16-Nov-2017 LMB=Lumsden, Grant

Rear Vision Camera System Operation

The rear vision camera system consists of a video camera located at the rear of the vehicle and the Rado.

When the transmission is placed into REVERSE, a signal is sent to the Radio indicating that camera operation is requested. The rearview camera sends video information to the radio through a coax cable. The coax cable also provides power from the Radio to the rearview camera.

The following conditions may cause a degraded rear vision camera image:

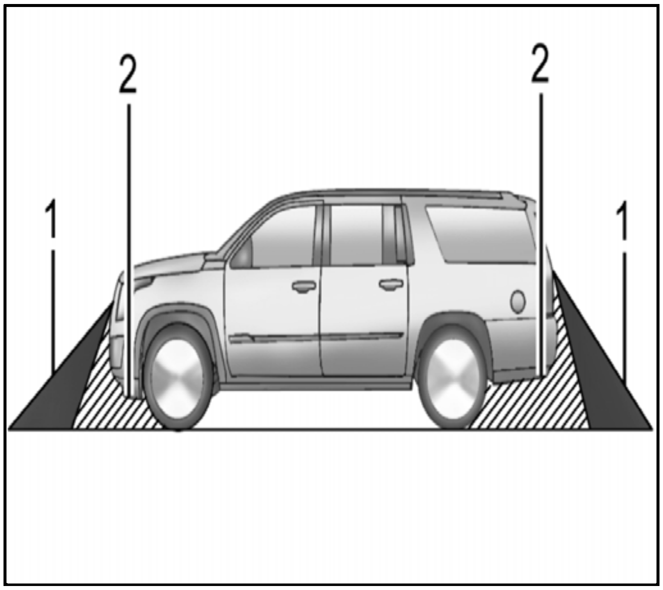
- Ice, snow, or mud has built up on the rear vision camera
- Dark conditions
- Extreme light conditions, such as glare from the sun or the headlights of another vehicle
- Damage to the rear of the vehicle
- Extreme high temperatures or extreme temperature changes

If a malfunction is detected in the system, Service Rear Vision Camera may be displayed on the Info Display Module as an indicator to the customer that a problem exists that requires service.

Surround Vision Camera Description and Operation

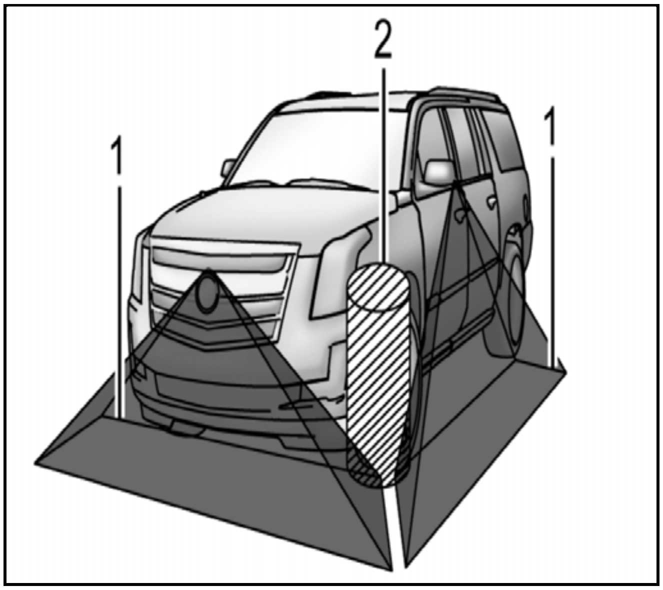
Object-ID=4997657 Owner=Lumsden, Grant LMD=23-Nov-2021 LMB=Lumsden, Grant

Warning: SIO-ID=3714598 LMD=05-Feb-2018 ***The Surround Vision cameras have blind spots and will not display all objects near the corners of the vehicle. Folding outside mirrors that are out of position may not display surround view correctly. Always check around the vehicle when parking or backing.***



4291164

1. View Displayed by the Surround Vision Camera
2. Area Not Shown



4291749

1. View Displayed by the Surround Vision Camera
2. Area Not Shown

The surround vision camera system consists of the following components:

- B87 Rearview Camera
- B174G Frontview Camera – Grille

- K157 Video Processing Control Module
- A11 Radio **OR** K74 Human Machine Interface Module
- B225L Sideview Camera – Left
- B225R Sideview Camera – Right
- X20 Memory Card Receptacle (with XVR)

When the vehicle is traveling at speeds slower than 6 mph (10kph) the video processing control module will power up the cameras and send a video signal to the radio or human machine interface module.

The following conditions may cause a degraded surround vision camera image:

- Ice, snow, or mud has built up on the rear vision camera
- Dark conditions
- Extreme light conditions, such as glare from the sun or the headlights of another vehicle
- Damage to the rear of the vehicle
- Extreme high temperatures or extreme temperature changes

Surround Vision displays an overhead view of the area surrounding the vehicle, along with the front or rear camera views in the center stack. The front camera is in the grille or near the front emblem, the side cameras are on the bottom of the outside rearview mirrors, and the rear vision camera is above the license plate.

Note: Images from the Sideview Cameras are only displayed when both front doors are properly closed.

Features of the Surround Vision System

- Rear camera (B87 Rearview Camera) view alongside overhead view is displayed in reverse
- Front camera (B174G Frontview Camera – Grille) view alongside overhead view is displayed after shifting out of reverse to Neutral or Drive
- Will display front view when front park assist object is within trigger range calibration value (30 cm (12 in) in a forward gear
- Image is removed from display when vehicle speed exceeds speed calibration (10kph/6 mph) or button press / screen touch

System Operation

The video processing control module is connected to each camera via a shielded coaxial cable. The coaxial cable provides power for the camera and also carries the video image from the cameras to the video processing control module for processing. The video processing control module will then send the processed image output to infotainment system via another coaxial cable.

The video processing module receives various vehicle information (such as steering wheel angle, object detection, etc) from other sources such as parking assist modules and the Body Control Module via serial data. This information is used to produce the enhanced surround vision system images that include a warning triangle that may display if an object is detected nearby. This triangle changes from amber to red and increases in size as the object gets closer to the vehicle. Also, dynamic guidelines are displayed in Reverse to show the projected path of the vehicle based on steering wheel angle. Due to this use of vehicle information, any faults or DTCs in these related systems can prohibit proper surround vision operation.

If equipped, the video processing control module system may have a memory card receptacle (with XVR) located in the trunk. The memory card receptacle interfaces with the video processing control module via a USB cable. The memory card receptacle also receives fused battery voltage and ground from the video processing control module. The video processing control module uses the memory card as a mass storage device, similar to a USB storage device.

BLANK

Section 5

Engine/Propulsion

Starting, Charging, and Low Voltage Energy Storage 5-3
  Schematic and Routing Diagrams 5-3
    Starting and Charging Schematics 5-4
    Auxiliary Battery Schematics 5-10
  Description and Operation 5-11
    Battery Description and Operation 5-11
    Charging System Description and Operation . . . 5-11
    Electrical Power Management Description and Operation 5-14
    Starting System Description and Operation 5-16

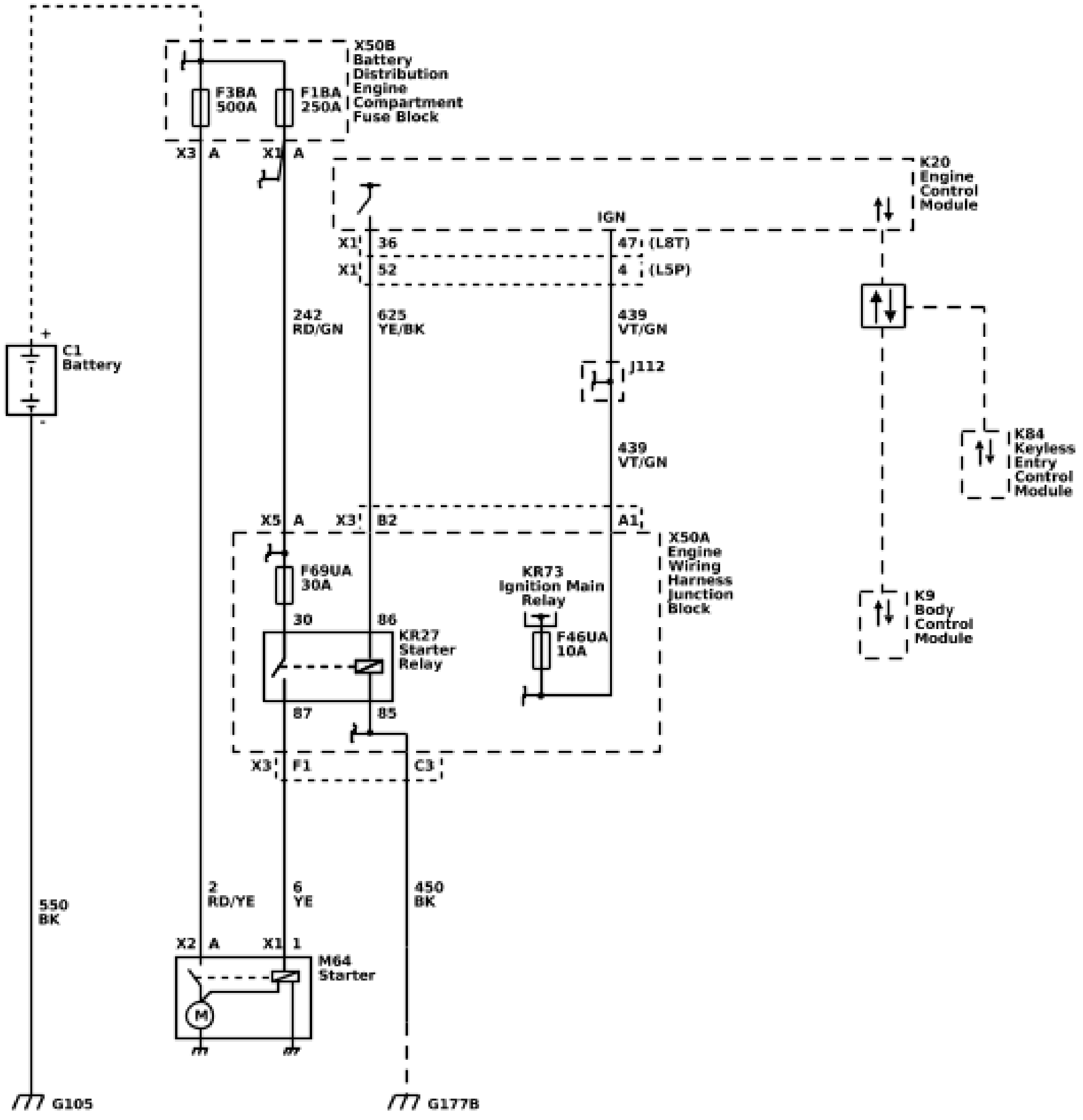
BLANK

Engine/Propulsion

Starting, Charging, and Low Voltage Energy Storage

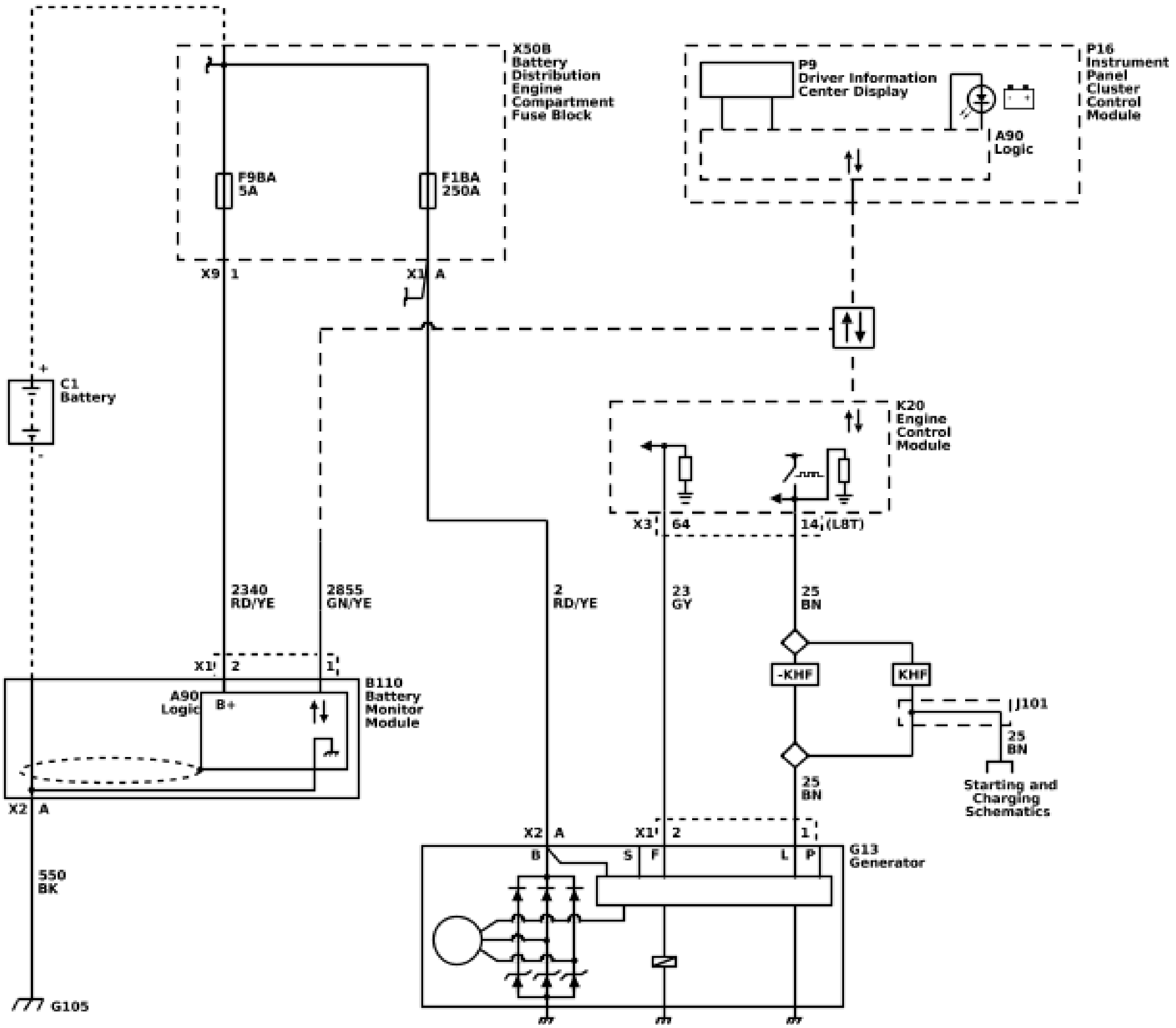
Schematic and Routing Diagrams

Starting and Charging Schematics Object-ID=6152345 (Starting)


X50B
Battery
Distribution
Engine
Compartment
Fuse Block
F3BA
500A
F18A
250A
X3 A
X1 A
C1
Battery
+
-
242
RD/GN
625
YE/BK
K20
Engine
Control
Module
IGN
X1 36
X1 52
47 (L8T)
4 (L5P)
439
VT/GN
J112
439
VT/GN
K84
Keyless
Entry
Control
Module
X5 A
X3 B2
A1
X50A
Engine
Wiring
Harness
Junction
Block
F69UA
30A
KR73
Ignition Main
Relay
F46UA
10A
K9
Body
Control
Module
30
86
KR27
Starter
Relay
87
85
X3 F1
C3
550
BK
2
RD/YE
6
YE
450
BK
X2 A
X1 1
M64
Starter
M
G105
G177B

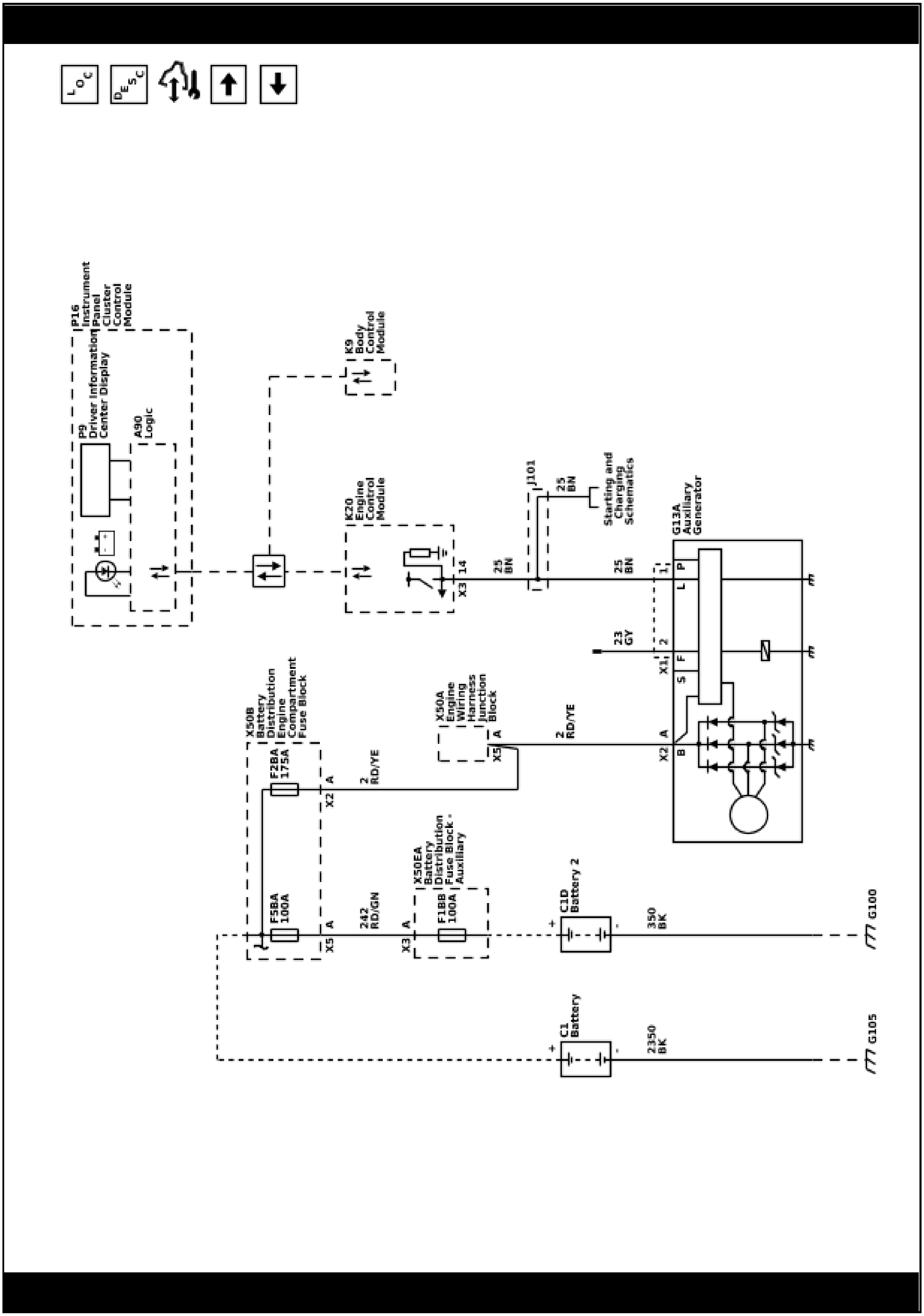
6150490

Starting and Charging Schematics Object-ID=6152345 (Charging (L8T))


X50B
Battery
Distribution
Engine
Compartment
Fuse Block
F98A
5A
F1BA
250A
X9 1
X1 A
C1
Battery
+
-
P9
Driver Information
Center Display
A90
Logic
P16
Instrument
Panel
Cluster
Control
Module
K20
Engine
Control
Module
X3 64
14 (L8T)
2340
RD/YE
2855
GN/YE
2
RD/YE
23
GY
25
BN
-KHF
KHF
J101
25
BN
Starting and
Charging
Schematics
25
BN
X1 2
1
B110
Battery
Monitor
Module
A90
Logic
B+
X2 A
550
BK
G105
X2 A
X1 2
1
B
S
F
L
P
G13
Generator

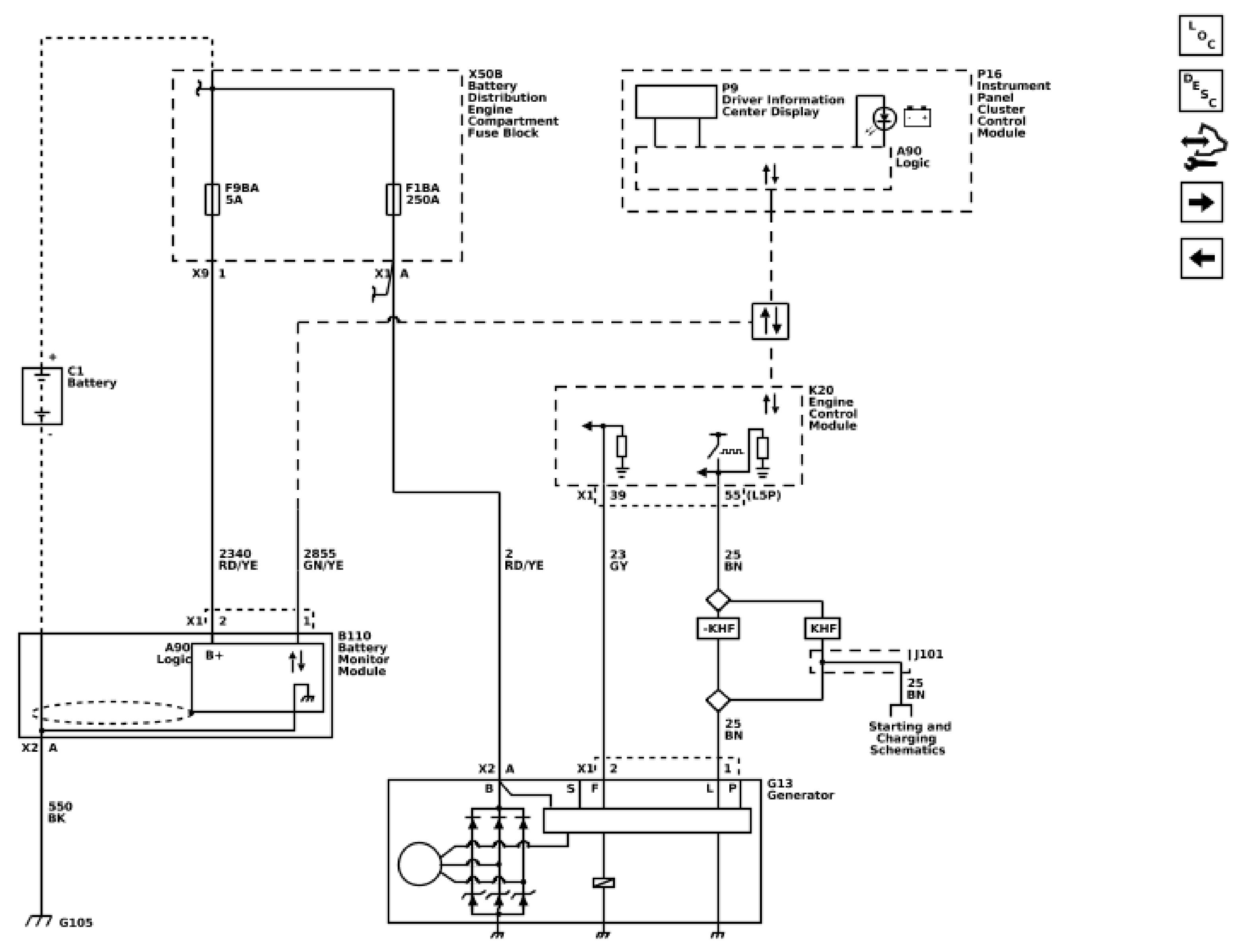
6150491

Starting and Charging Schematics Object-ID=6152345 (Charging Auxiliary (L8T))


P16 Instrument Panel Cluster Control Module
P9 Driver Information Center Display
A90 Logic
K9 Body Control Module
K20 Engine Control Module
X3 14
25 BN
J101
25 BN
Starting and Charging Schematics
G13A Auxiliary Generator
1 P
L
2 F
X1
S
23 GY
A
X2 B
X50B Battery Distribution Engine Compartment Fuse Block
F2BA 175A
X2 A
2 RD/YE
X50A Engine Wiring Harness Junction Block
X5 A
2 RD/YE
X50EA Battery Distribution Fuse Block - Auxiliary
F5BA 100A
X5 A
242 RD/GN
X3 A
F1BB 100A
C1D Battery 2
350 BK
G100
C1 Battery
2350 BK
G105
+
-

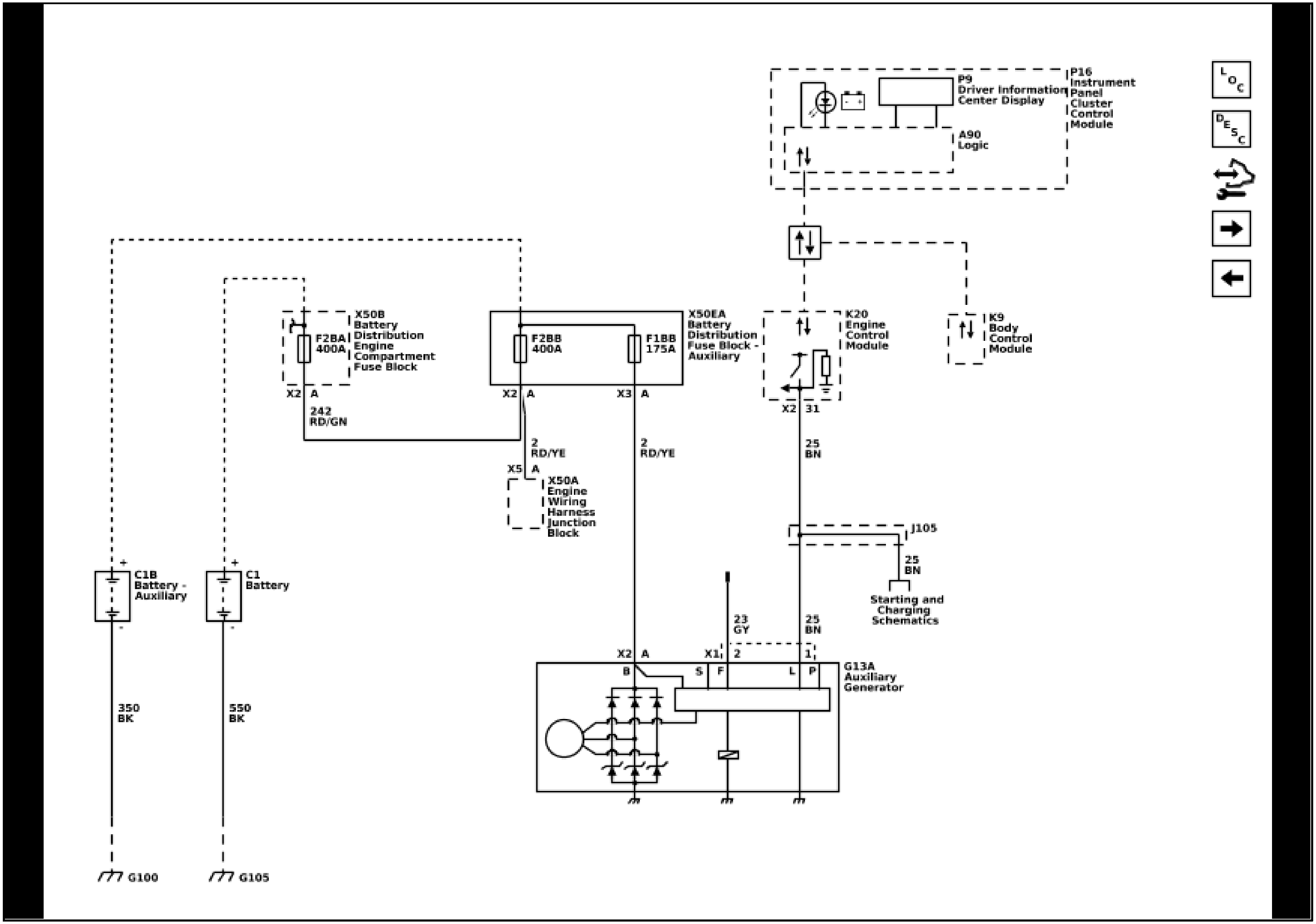
6150492

Starting and Charging Schematics Object-ID=6152345 (Charging (L5P))


X50B
Battery
Distribution
Engine
Compartment
Fuse Block
F9BA
5A
F1BA
250A
X9 1
X1 A
C1
Battery
+
-
2340
RD/YE
2855
GN/YE
2
RD/YE
X1 2
1
B110
Battery
Monitor
Module
A90
Logic
B+
X2 A
550
BK
G105
P16
Instrument
Panel
Cluster
Control
Module
P9
Driver Information
Center Display
A90
Logic
K20
Engine
Control
Module
X1 39
55 (L5P)
23
GY
25
BN
-KHF
KHF
J101
25
BN
Starting and
Charging
Schematics
25
BN
X2 A
X1 2
1
B
S
F
L
P
G13
Generator

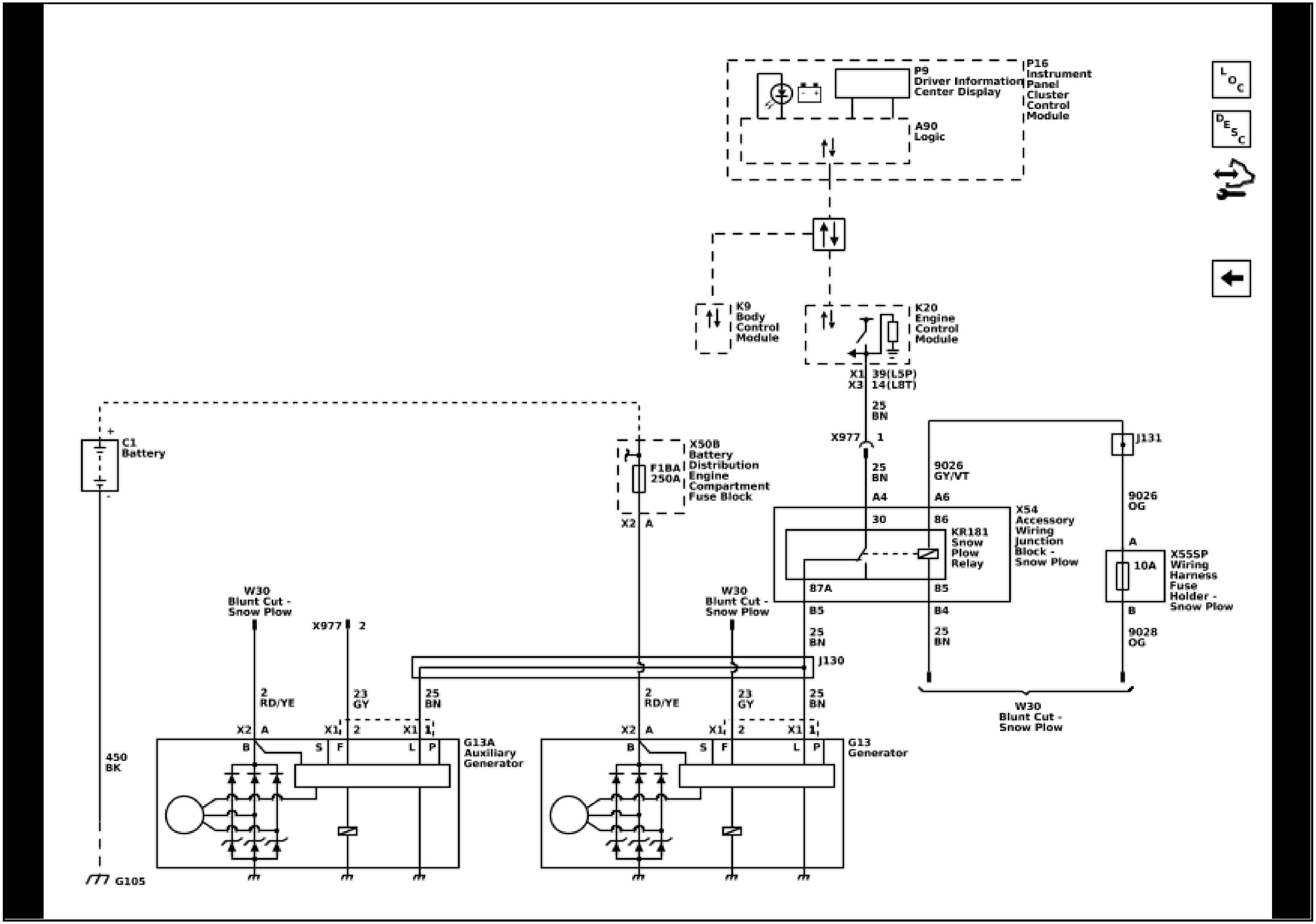
6150493

Starting and Charging Schematics Object-ID=6152345 (Charging Auxiliary (L5P))

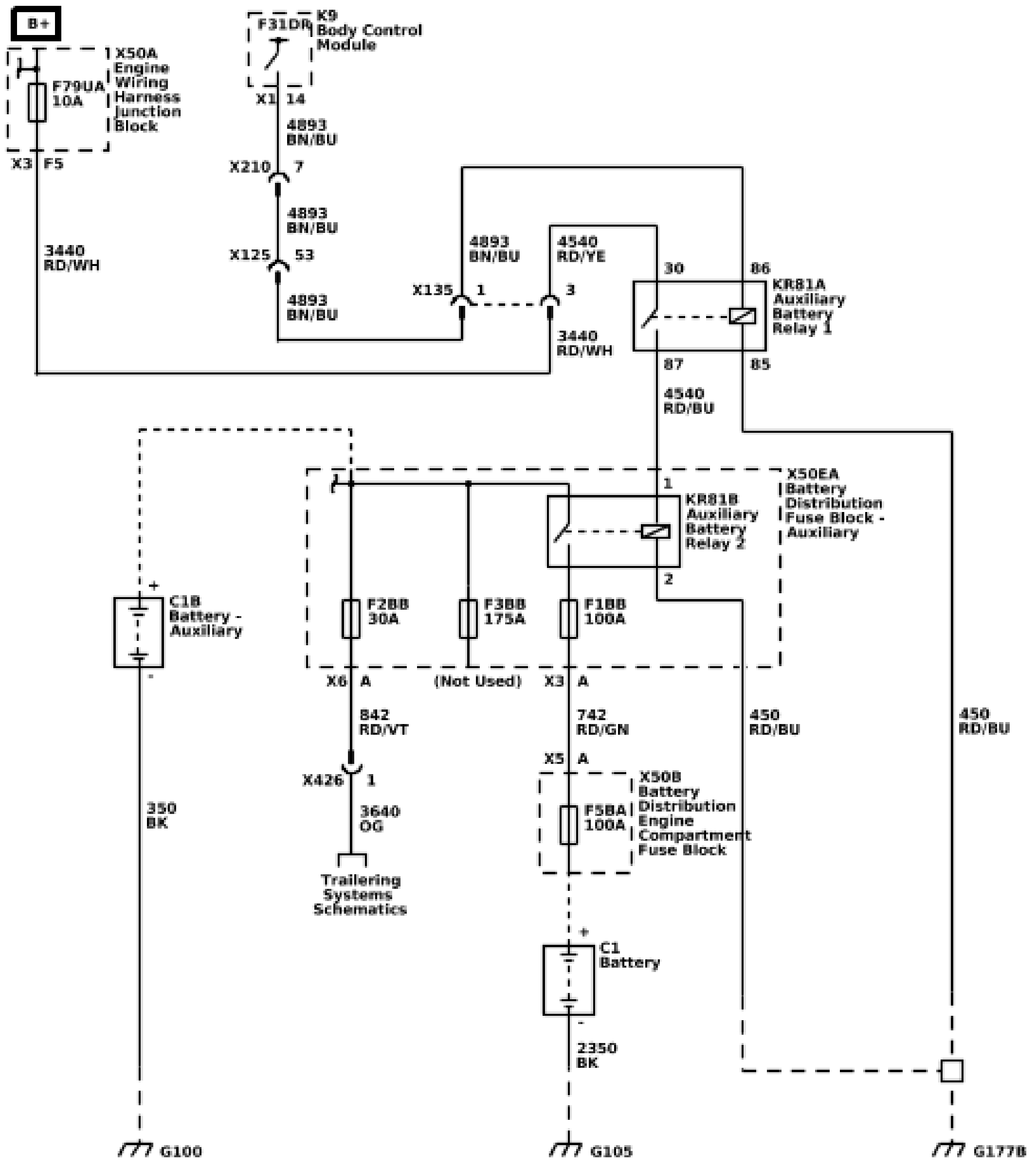

P16 Instrument Panel Cluster Control Module
P9 Driver Information Center Display
A90 Logic
K9 Body Control Module
K20 Engine Control Module
X2 31
25 BN
J105
25 BN
Starting and Charging Schematics
X50EA Battery Distribution Fuse Block - Auxiliary
F2BB 400A
F1BB 175A
X2 A
X3 A
2 RD/YE
2 RD/YE
X5 A
X50A Engine Wiring Harness Junction Block
X50B Battery Distribution Engine Compartment Fuse Block
F2BA 400A
X2 A
242 RD/GN
23 GY
25 BN
X2 A
X1 2
1
B
S F
L P
G13A Auxiliary Generator
C1B Battery - Auxiliary
C1 Battery
+
-
350 BK
550 BK
G100
G105

6150494

Starting and Charging Schematics Object-ID=6152345 (Charging (VYU))


P16
Instrument Panel Cluster Control Module
P9
Driver Information Center Display
A90
Logic
K9
Body Control Module
K20
Engine Control Module
X1 39(L5P)
X3 14(L8T)
25
BN
X977 1
9026
GY/VT
A4
A6
30
86
KR181
Snow Plow Relay
X54
Accessory Wiring Junction Block - Snow Plow
87A
85
B5
B4
25
BN
J131
9026
OG
A
10A
X55SP
Wiring Harness Fuse Holder - Snow Plow
B
9028
OG
W30
Blunt Cut - Snow Plow
C1
Battery
+
-
X50B
Battery Distribution Engine Compartment Fuse Block
F18A
250A
X2 A
J130
W30
Blunt Cut - Snow Plow
X977 2
2
RD/YE
23
GY
25
BN
X2 A
X1 2
X1 1
B S F L P
G13A
Auxiliary Generator
G13
Generator
450
BK
G105
6150495

Auxiliary Battery Schematics Object-ID=6152347 (Auxiliary Battery Relays (K4Z))


B+
X50A Engine Wiring Harness Junction Block
F79UA 10A
X3 F5
3440 RD/WH
K9 Body Control Module
F31DR
X1 14
4893 BN/BU
X210 7
4893 BN/BU
X125 53
4893 BN/BU
X135 1
3
4893 BN/BU
4540 RD/YE
3440 RD/WH
30
86
KR81A Auxiliary Battery Relay 1
87
85
4540 RD/BU
1
KR81B Auxiliary Battery Relay 2
2
X50EA Battery Distribution Fuse Block - Auxiliary
F28B 30A
F38B 175A
F18B 100A
X6 A
(Not Used)
X3 A
842 RD/VT
742 RD/GN
450 RD/BU
450 RD/BU
X426 1
3640 OG
Trailering Systems Schematics
X5 A
X50B Battery Distribution Engine Compartment Fuse Block
F5BA 100A
+
C1B Battery - Auxiliary
-
350 BK
+
C1 Battery
-
2350 BK
G100
G105
G177B

6150496

Description and Operation

Battery Description and Operation

Object-ID=2187331 Owner=Salkowski, Jakob LMD=10-Jan-2023 LMB=Blanzy, Ken

Warning: SIO-ID=2053528 LMD=25-Jan-2008 ***Batteries produce explosive gases, contain corrosive acid, and supply levels of electrical current high enough to cause burns. Therefore, to reduce the risk of personal injury when working near a battery:***

- ***Always shield your eyes and avoid leaning over the battery whenever possible.***
- ***Do not expose the battery to open flames or sparks.***
- ***Do not allow the battery electrolyte to contact the eyes or the skin. Flush immediately and thoroughly any contacted areas with water and get medical help.***
- ***Follow each step of the jump starting procedure in order.***
- ***Treat both the booster and the discharged batteries carefully when using the jumper cables.***

Batteries that are no longer wanted must be disposed of by an approved battery recycler and must never be thrown in the trash or sent to a landfill.

Batteries that are not part of the vehicle itself, not the battery under the hood, must only be transported on public streets for business purposes via approved hazardous material transportation procedures.

Battery storage, charging and testing facilities in repair shops must meet various requirements for ventilation, safety equipment, material segregation, etc.

The maintenance free battery is standard. There are no vent plugs in the cover. The battery is completely sealed except for 2 small vent holes in the side. These vent holes allow the small amount of gas that is produced in the battery to escape.

The battery has 3 functions as a major source of energy:

- Engine cranking
- Voltage stabilizer
- Alternate source of energy with generator overload

Battery Low Start Vehicle Message

The body control module (BCM) monitors battery positive voltage to determine battery state of charge. If one or more of the BCM battery positive voltage terminals measure less than approximately 11.6V compared to the BCM ground circuits, this message will display and four chimes may sound. Start the vehicle immediately. If the vehicle is not started and the battery continues to discharge, the climate controls, heated seats, and audio systems will shut off and the vehicle may require a jump start. These systems will function again after the vehicle is started.

Battery Ratings

A battery has 2 ratings:

- Cold cranking amperage
- Amperage hours

When a battery is replaced use a battery with similar ratings. See battery specification label on the original battery.

Amperage Hours

The amperage hour rating tells you how much amperage is available when discharged evenly over a 20 hour period. The amperage hour rating is cumulative, so in order to know how many constant amperage the battery will output for 20 h, you have to divide the amperage hour rating by 20. Example: If a battery has an amperage hour rating of 74, dividing by 20 = 3.75. Such a battery can carry a 3.75 A load for 20 hours before dropping to 10.5 V. (10.5 V is the fully discharged level, at which point the battery needs to be recharged.) A battery with an amperage hour rating of 55 will carry a 2.75 A load for 20 hours before dropping to 10.5 V.

Cold Cranking Amperage

The cold cranking amperage is an indication of the ability of the battery to crank the engine at cold temperatures. The cold cranking amperage rating is the minimum amperage the battery must maintain for 30 seconds at −18°C (0°F) while maintaining at least 7.2 V. See battery label for the cold cranking amperage rating of this battery.

Charging System Description and Operation

Object-ID=6200945 Owner=Salkowski, Jakob LMD=10-Jan-2023 LMB=Blanzy, Ken

Electrical Power Management Overview

The electrical power management system is designed to monitor and control the charging system and send diagnostic messages to alert the driver of possible problems with the battery and generator. This electrical power management system primarily utilizes existing on-board computer capability to maximize the effectiveness of the generator, to manage the load, improve battery state-of-charge and life, and minimize the system's impact on fuel economy. The electrical power management system performs 3 functions:

- Monitor the battery voltage and estimate the battery condition
- Take corrective actions by boosting idle speeds, and adjusting the regulated voltage
- Perform diagnostics and driver notification

The battery condition is estimated during ignition/vehicle off and during ignition/vehicle on. During ignition/vehicle off the state-of-charge of the battery is determined by measuring the open-circuit voltage. The state-of-charge is a function of the acid concentration and the internal resistance of the battery, and is estimated by reading the battery open circuit voltage when the battery has been at rest for several hours.

Any time the ignition/vehicle is on, the vehicle algorithm continuously estimates battery state-of-charge based on adjusted net amp hours, battery capacity, initial state-of-charge, and calculated temperature.

While the engine is running, the battery degree of discharge is primarily determined by the integrated battery current sensor, to obtain net amp hours.

In addition, the electrical power management function is designed to perform regulated voltage control to improve battery state-of-charge, battery life, and fuel economy. This is accomplished by using knowledge of the battery state-of-charge and temperature to set the charging voltage to an optimum battery voltage level for recharging without detriment to battery life.

Charging System Components

Generator

The engine drive belt drives the generator. When the rotor is spun, it induces an alternating current (AC) into the stator windings. The AC voltage is then sent through a series of diodes for rectification. The rectified voltage has been converted into a direct current (DC) for use by the vehicles electrical system to maintain electrical loads and the battery charge. The voltage regulator integral to the generator controls the output of the generator; It is not serviceable. The voltage regulator controls the amount of current provided to the rotor. If the generator has field control circuit fault, the generator defaults to an output voltage of 13.8 V.

The generator is serviced as a complete assembly. If there is a diagnosed fault in the generator, it must be replaced as an assembly.

Generator Pulley

The pulley drives the Generator via the engine drive belt. There are 2 types of pulleys:

1. Conventional solid Pulley which is bolted to the Generator stator shaft. This Pulley can be serviced separately.

2. One Way Clutch Pulley or Overrunning Alternator Decoupler Pulley allows the Generator to spin freely when the engine rapidly slows down on sudden deceleration. This part is not serviceable and the Generator needs to be replaced as an assembly.

Body Control Module (BCM)

The BCM communicates with the Engine Control Module (ECM) and the instrument cluster for electrical power management operation. The BCM determines the output of the generator and sends the information to the ECM for control of the generator turn on signal circuit. It monitors the generator field duty cycle signal circuit information sent from the ECM for control of the generator. It monitors the battery current sensor, the battery positive voltage circuit, and estimates battery temperature to determine battery state of charge. The BCM also performs idle boost.

Battery Sensor Module (if applicable)

The BCM monitors the Battery Sensor Module for battery state of current, state of health, and battery charge via serial data. If the battery is determined to be in poor state of health or having a low state of charge, the BCM will not allow the ECM to perform an auto-stop.

Engine Control Module (ECM)

When the engine is running, the generator turn-on signal is sent to the generator from the ECM, turning on the regulator. The generator's voltage regulator controls current to the rotor, thereby controlling the output voltage. The rotor current is proportional to the electrical pulse width supplied by the regulator. When the engine is started, the regulator senses generator rotation by detecting AC voltage at the stator through an internal wire. Once the engine is running, the regulator varies the field current by controlling the pulse width. This regulates the generator output voltage for proper battery charging and electrical system operation. The generator field duty terminal is connected internally to the voltage regulator and externally to the ECM. When the voltage regulator detects a charging system problem, it grounds this circuit to signal the ECM that a problem exists. The ECM monitors the generator field duty cycle signal circuit, and receives control decisions based on information from the BCM.

Instrument Cluster

As a means of displaying the charging system functions, some vehicles may be equipped with a voltmeter gauge on the instrument cluster and/or a system voltage display in the driver information center. These will indicate the current vehicle system voltage.

The instrument cluster also provides customer notification if there is a concern with the charging system. There are two means of notification: a charge indicator on the instrument cluster and/or a service system message displayed on the Driver Information Center (DIC) if equipped.

Charging System Operation

The purpose of the charging system is to maintain the battery charge and vehicle loads. There are 6 modes of operation and they include:

- Battery Sulfation Mode
- Charge Mode
- Fuel Economy Mode
- Head lamp Mode
- Start Up Mode
- Voltage Reduction Mode

The ECM Controls the Generator through the generator turn–on signal circuit, also known as the Generator L-terminal. The ECM monitors the generator performance though the Generator field duty cycle signal circuit, also known as the generator F-terminal.

The Generator turn–on signal (Generator L-terminal) is a Pulse Width Modulation (PWM) signal of 128 Hz with a duty cycle of 0–100%. Normal duty cycle is between 5–95%. 0–5% and 95–100% are for diagnostic purposes, with 0–5% monitoring for an open circuit and 95–100% monitoring for a short to ground at a fixed 13.8 V. The following table shows the commanded duty cycle and output voltage of the Generator:

Commanded Duty Cycle	Generator Output Voltage (+/- .25 V)
0–5%	13.8 V
10%	11 V
20%	11.56 V
30%	12.13 V
40%	12.69 V
50%	13.25 V
60%	13.81 V

Commanded Duty Cycle	Generator Output Voltage (+/- .25 V)
70%	14.38 V
80%	14.94 V
90%	15.5 V
95–100%	13.8 V

The Generator provides a PWM feedback signal of the Generator voltage output through the Generator field duty cycle signal circuit to the ECM. This information is sent to the Body Control Module (BCM). The Generator field duty cycle signal (Generator F-terminal) is a PWM signal of 60–460 Hz with a duty cycle of 0–100%. Normal duty cycle is between 5–100%. 0–5% is reserved for diagnostic purposes.

As the charging systems works to maintain the battery charge and manage vehicle electrical loads, it is normal for the voltmeter gauge on the instrument cluster or the system voltage displayed in the DIC to fluctuate or change. This does not indicate a malfunction. Depending on the battery state of charge and the vehicle electrical load, these values may be anywhere from 12.5 V to 15.5 V.

Charging System Modes

Battery Sulfation Mode

The BCM will enter this mode when the interpreted Generator output voltage is less than 13.2 V for 45 minutes. When this condition exists the BCM will enter Charge Mode for 2–3 minutes. The BCM will then determine which mode to enter depending on voltage requirements.

Charge Mode

The BCM will enter Charge Mode when ever one of the following conditions are met:

- Windshield wipers are ON for more than 3 s.
- Climate Control Voltage Boost Mode Request is true, as sensed by the HVAC control module via serial data. High speed cooling fan, rear defogger, and HVAC high speed blower operation can cause the BCM to enter the Charge Mode.
- The estimated battery temperature is less than 0° C (32°F).
- Battery State of Charge is less than 80%.
- Vehicle speed is greater than 145 km/h (90 mph)
- A current sensor malfunction exists.
- System voltage is determined to be below 12.56 V

When any one of these conditions is met, the system will set targeted generator output voltage to a charging voltage between 13.9–15.5 V, depending on the battery state of charge and estimated battery temperature.

Fuel Economy Mode

The BCM will enter Fuel Economy Mode when the estimated battery temperature is at least 0°C (32°F) but less than or equal to 80°C (176°F), the calculated battery current is less than 15 A and greater than −8 A, and the battery state-of-charge is greater than or equal to 80%. Its targeted generator output voltage is the open circuit voltage of the battery and can be between 12.5–13.1 V. When fuel economy mode is active, the generator is not charging, only maintaining open circuit battery voltage. The BCM will exit this mode and enter Charge Mode when any of the conditions described above are present.

Headlamp Mode

The BCM will enter Headlamp Mode when ever the head lamps are ON (high or low beams). Voltage will be regulated between 13.9–14.5 V.

Start Up Mode

When the engine is started the BCM sets a targeted generator output voltage of 14.5 V for 30 s.

Tow/Haul Mode (if applicable)

Pressing the Tow/Haul Mode button located on the center stack, the vehicle system voltage is raised and the remote (non-vehicle) battery will be charged. Having the headlamps on will raise the system voltage and if the Tow/Haul button is applied it will not serve any purpose. The voltage is regulated between 13.9-14.5 V.

Instrument Cluster Operation

Charge Indicator Operation

The instrument cluster illuminates the charge indicator and displays a warning message in the driver information center if equipped, when the one or more of the following occurs:

- The ECM detects that the generator output is less than 11 V or greater than 16 V. The instrument cluster receives a serial data message from the ECM requesting illumination.
- The instrument cluster determines that the system voltage is less than 11 V or greater than 16 V for more than 30 s. The instrument cluster receives a serial data message from the BCM indicating there is a system voltage range concern.
- The instrument cluster performs the displays test at the start of each ignition cycle. The indicator illuminates for approximately 3 s.

Driver Information Center Message: BATTERY NOT CHARGING SERVICE CHARGING SYSTEM or SERVICE BATTERY CHARGING SYSTEM

The BCM and the ECM will send a serial data message to the driver information center for the BATTERY NOT CHARGING SERVICE CHARGING SYSTEM or SERVICE BATTERY CHARGING SYSTEM message to be displayed. It is displayed when a charging system DTC is a current DTC. The message is turned off when the conditions for clearing the DTC have been met.

Voltmeter Gauge and/or System Voltage Display (if equipped)

As a means of displaying the charging system functions, some vehicles may be equipped with a voltmeter gauge on the instrument cluster and/or a system voltage display in the driver information center. These will indicate the current vehicle system voltage.

As the charging systems works to maintain the battery charge and manage vehicle electrical loads, it is normal for the voltmeter gauge on the instrument cluster or the system voltage display in the driver information center to fluctuate or change. This does not indicate a malfunction. Depending on the battery state of charge and the vehicle electrical load, these values may be anywhere from 12.5 V to 15.5 V.

Electrical Power Management Description and Operation

Object-ID=2206059 Owner=Salkowski, Jakob LMD=10-Jan-2023 LMB=Blanzy, Ken

Electrical Power Management

The electrical power management is used to monitor and control the charging system and alert the driver of possible problems within the charging system. The electrical power management system makes the most efficient use of the generator output, improves the battery state-of-charge, extends battery life, and manages system electrical loads.

The load shed operation is a means of reducing electrical loads during a low voltage or low battery state-of-charge condition.

The idle boost operation is a means of improving generator performance during a low voltage or low battery state-of-charge condition.

Each electrical power management function, either idle boost or load shed, is activated in incremental steps. For example, idle boost 1 must be active before idle boost 2 can be active. The criteria used by the body control module (BCM) to regulate electrical power management are outlined below:

Idle Boost and Load Shed With Current Sensor

Function	Battery Temperature Calculation	Battery Voltage Calculation	Amp-Hour Calculation	Action Taken
Idle Boost 1 Start	Less Than −15°C (5°F)	Less Than 13 V	—	First level Idle boost requested
Idle Boost 1 Start	—	—	Battery has a net loss greater than 0.6 Ah	First level Idle boost requested
Idle Boost 1 Start	—	Less Than 11 V	—	First level Idle boost requested
Idle Boost 1 End	Greater Than −10°C (14°F)	Greater Than 12 V	Battery has a net loss less than 0.2 Ah	First level Idle boost request cancelled
Idle Boost 2 Start	—	—	Battery has a net loss greater than 1.6 Ah	Second level Idle boost requested
Idle Boost 2 Start	—	Less Than 11 V	—	Second level Idle boost requested
Idle Boost 2 End	—	Greater Than 12 V	Battery has a net loss less than 0.8 Ah	Second level Idle boost request cancelled
Load Shed 1 Start	—	—	Battery has a net loss of 4 Ah	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 20% of their cycle
Load Shed 1 Start	—	Less Than 11 V	—	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 20% of their cycle
Load Shed 1 End	—	Greater Than 12 V	Battery has a net loss of less than 2 Ah	Clear Load Shed 1
Idle Boost 3 Start	—	—	Battery has a net loss of 10 Ah	Third level Idle boost requested
Idle Boost 3 Start	—	Less Than 11 V	—	Third level Idle boost requested

Idle Boost and Load Shed With Current Sensor (cont'd)

Function	Battery Temperature Calculation	Battery Voltage Calculation	Amp-Hour Calculation	Action Taken
Idle Boost 3 End	—	Greater Than 12 V	Battery has a net loss of less than 6.0 Ah	Third level Idle boost request cancelled
Load Shed 2 Start	—	—	Battery has a net loss greater than 12 Ah	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 Start	—	Less Than 11 V	—	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 End	—	Greater Than 12 V	Battery has a net loss of less than 8 Ah	Clear Load Shed 2
Load Shed 3 Start	—	Less Than 11.9 V	Battery has a net loss greater than 20 Ah	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 3 Start	—	Less Than 11 V	—	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 3 End	—	Greater Than 12.6 V	Battery has a net loss of less than 13 Ah	Clear Load Shed 3

Idle Boost and Load Shed Without Current Sensor (based on battery voltage)

Function	Battery Temperature Calculation	Battery Voltage Calculation	Action Taken
Idle Boost 1 Start	Less Than −15°C (5°F)	Less Than 13 V	First level Idle boost requested
Idle Boost 1 Start	—	Less Than 12.6 V	First level Idle boost requested
Idle Boost 1 End	Greater Than −15°C (5°F)	—	First level Idle boost request cancelled
Idle Boost 1 End	—	Greater Than 13 V	First level Idle boost request cancelled
Idle Boost 2 Start	—	Less Than 12.4 V	Second level Idle boost requested
Idle Boost 2 End	—	Greater Than 12.5 V	Second level Idle boost request cancelled
Load Shed 1 Start	—	Less Than 12.3 V	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 20% of their cycle
Load Shed 1 End	—	Greater Than 12.4 V	Clear Load Shed 1

Idle Boost and Load Shed Without Current Sensor (based on battery voltage) (cont'd)

Function	Battery Temperature Calculation	Battery Voltage Calculation	Action Taken
Idle Boost 3 Start	—	Less Than 10 V	Third level Idle boost requested
Idle Boost 3 End	—	Greater Than 12.3 V	Third level Idle boost request cancelled
Load Shed 2 Start	—	Less Than 12.1 V	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 End	—	Greater Than 12.2 V	Clear Load Shed 2
Load Shed 3 Start	—	Less Than 11.9 V	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 3 End	—	Greater Than 12.0 V	Clear Load Shed 3

Starting System Description and Operation

Object-ID=2206061 Owner=Salkowski, Jakob LMD=10-Jan-2023 LMB=Blanzy, Ken

Starter Motor Operation (Without KL9)

The starter motors are non-repairable. They have pole pieces that are arranged around the armature. Both solenoid windings are energized. The pull-in winding circuit is completed to the ground through the starter motor. The windings work together magnetically to pull and hold in the plunger. The plunger moves the shift lever. This action causes the starter drive assembly to rotate on the armature shaft spline as it engages with the flywheel ring gear on the engine. Moving at the same time, the plunger also closes the solenoid switch contacts in the starter solenoid. Full battery voltage is applied directly to the starter motor and it cranks the engine.

As soon as the solenoid switch contacts close, current stops flowing thorough the pull-in winding because battery voltage is applied to both ends of the windings. The hold-in winding remains energized. Its magnetic field is strong enough to hold the plunger, shift lever, starter drive assembly, and solenoid switch contacts in place to continue cranking the engine. When the engine starts, pinion overrun protects the armature from excessive speed until the switch is opened.

When the crank signal is removed, the starter relay opens and battery voltage is removed from the starter solenoid S terminal. Current flows from the motor contacts through both windings to the ground at the end of the hold-in winding. However, the direction of the current flow through the pull-in winding is now opposite the direction of the current flow when the winding was first energized.

The magnetic fields of the pull-in and hold-in windings now oppose one another. This action of the windings, along with the help of the return spring, causes the starter drive assembly to disengage and the solenoid switch contacts to open simultaneously. As soon as the contacts open, the starter circuit is turned off.

Enhanced Starter Motor Operation (KL9)

The Engine Stop/Start system in GM vehicles automatically turns off the engine when the vehicle comes to a stop under certain driving conditions, and can quickly restart the engine in about 0.3 seconds when commanded to do so.

In order to smoothly restart the engine as quickly as possible while managing the greater number of engine starts, the Stop/Start system uses an enhanced starter motor that operates differently from a conventional starter motor. It has a high performance electric motor and a stronger pinion engagement mechanism than a conventional starter. It also has independent control of the pinion and motor.

The enhanced starter motor continues using the typical pinion engagement mechanism with a starter solenoid that drives the pinion gear to engage or disengage the flywheel of the engine. When engaged, the starter motor can rotate the engine flywheel and, in turn, the crankshaft.

On the enhanced starter of a Stop/Start system the operation is done in two separate functions inside the solenoid, Starter Motor and Pinion Actuator. Each function controlled individually by the ECM. There are two separate relays to control the two separate parts of the enhanced solenoid:

- KR27 Starter Motor Relay
- KR27C Starter Pinion Actuator Relay

The two individually-controlled relays allow for smooth engagement of the pinion gear into the flywheel with minimum noise and wear.

When the vehicle is coming to a stop, just before the engine stops rotating (at approximately 50 RPM) during stop/start operation, the ECM energizes the Starter Pinion Solenoid Actuator Relay to easily push the pinion gear into the flywheel gear without gear clash. (Fig. 8) When the engine stops rotating during Stop/Start operation (Auto Stop mode), the starter pinion gear is fully engaged, ready for the starter motor to become energized to quickly start the engine again.

A secondary need for the starter pinion to be driven into the flywheel gear before the engine stops rotating is to address quickly changing demands on the engine. For example, when a driver is slowing nearly to a stop — and the Stop/Start system is preparing for Auto Stop mode — but suddenly decides to release the brake and accelerate

In this situation, the engine has already stopped rotating, or nearly so. A conventional starter cannot restart the engine until the engine has completely stopped. However, with the enhanced starter, the starter pinion gear is fully engaged and ready to begin rotating the engine even before it fully stops turning. Otherwise, the engine would actually have to stop rotating before the pinion can engage smoothly to begin a restart.

To prevent a lag in engine operation, the ECM uses predictive speed matching of the flywheel gear speed and the pinion gear speed to engage the pinion gear into the flywheel gear without gear clash before the engine fully stops. By predicting how long it takes the starter motor to spin up using an algorithm, the pinion gear speed can be matched to the flywheel gear speed. The result is an almost instant restart that is possible at extremely low engine speeds.

Circuit Description

Keyless Start

When the Ignition mode switch is placed in the crank position, a discrete signal is supplied to the body control module (BCM) notifying it that the ignition is in the crank position. The BCM then sends a serial data message to the engine control module (ECM) that crank has been requested. The ECM then verifies that the brake pedal is applied and for manual transmission the clutch is fully depressed or for automatic transmission is in Park/Neutral. If it is, the ECM then supplies 12 V to the control circuit of the starter relay. When this occurs, battery positive voltage is supplied through the switch side of the crank relay to the S terminal of the starter solenoid.

Key Start

When the ignition switch is placed in the Start position, a discrete signal is supplied to the body control module (BCM) notifying it that the ignition is in the Start position. The BCM then sends a message to the engine control module (ECM) notifying it that CRANK has been requested. The ECM verifies that the transmission is in Park or Neutral. If it is, the ECM then supplies 12 V to the control circuit of the crank relay. When this occurs, battery positive voltage is supplied through the switch side of the crank relay to the S terminal of the starter solenoid.

BLANK

Section 6

HVAC

Heading, Ventilation, and Air Conditioning 6-3

Description and Operation 6-3

Heating and Air Conditioning System Description and Operation 6-3

HVAC - Automatic 6-4

Schematic and Routing Diagrams 6-4

HVAC Schematics 6-5

Description and Operation 6-11

Automatic HVAC Description and Operation 6-11

HVAC - Manual 6-15

Schematic and Routing Diagrams 6-15

HVAC Schematics 6-16

Description and Operation 6-22

Manual HVAC Description and Operation 6-22

BLANK

HVAC

Heating, Ventilation, and Air Conditioning

Description and Operation

Heating and Air Conditioning System Description and Operation

Object-ID=5277728 Owner=Escamilla, Valdemar LMD=14-Mar-2019 LMB=Freigruber, Mark

Engine Coolant

Engine coolant is the key element of the heating system. The engine thermostat controls the normal engine operating coolant temperature. Coolant pumped out of the engine enters the heater core through the inlet heater hose. The air flowing through the HVAC module absorbs the heat of the coolant flowing through the heater core. The coolant then exits the heater core through the heater outlet hose and returns back to the engine block.

Auxiliary Electric Heater

Vehicles equipped with a diesel engine come with an auxiliary electric heater. This 12V electrically powered heating element is positioned directly behind the regular coolant flow based heater core in the HVAC case. All airflow goes through the regular heater core first, and then through the auxiliary electric heater. The auxiliary electric heater is active when the outside ambient temperature is below **8°C (46°F)** , the coolant temperature is below **75°C (167°F)** , and the temperature air mix door is near the full hot position.

A/C Cycle

Refrigerant is the key element in an air conditioning system. R-134a is a very low temperature gases that can transfer the undesirable heat from the passenger compartment to the outside air.

The A/C compressor is belt driven and operates when the magnetic clutch is engaged. The compressor builds pressure in the A/C system. Compressing the refrigerant also adds heat to the refrigerant. The refrigerant is discharged from the compressor through the discharge hose, and forced to flow to the condenser and then through the balance of the A/C system. The A/C system is mechanically protected with the use of a high pressure relief valve. If the high pressure A/C switch were to fail or if the refrigerant system becomes restricted and refrigerant pressure continued to rise, the high pressure relief will pop open and release refrigerant from the system.

Compressed refrigerant enters the condenser in a high temperature, high pressure vapor state. As the refrigerant flows through the condenser, the heat of the refrigerant is transferred to the ambient air passing through the condenser. Cooling the refrigerant causes the refrigerant to condense and change from a vapor to a liquid state.

The condenser is located in front of the radiator for maximum heat transfer. The condenser is made of aluminum tubing and aluminum cooling fins, which allows rapid heat transfer for the refrigerant. The semi-cooled liquid refrigerant exits the condenser and flows through the liquid line, to the TXV.

The TXV is located at the evaporator inlet. The TXV is the dividing point for the high and the low pressure sides of the A/C system. As the refrigerant passes through the TXV, the refrigerant is lowered. Due to the pressure differential on the liquid refrigerant, the refrigerant will begin to boil at the TXV. The TXV also meters the amount of liquid refrigerant that can flow into the evaporator.

Refrigerant exiting the TXV flows into the evaporator core in a low pressure, liquid state. Ambient air is drawn through the HVAC module and passes through the evaporator core. Warm and moist air will cause the liquid refrigerant to boil inside the evaporator core.

The boiling refrigerant absorbs heat from the ambient air and draws moisture onto the evaporator. The refrigerant exits the evaporator through the suction line and back to the compressor, in a vapor state. This completes the A/C cycle of heat removal. At the compressor, the refrigerant is compressed again and the cycle of heat removal is repeated.

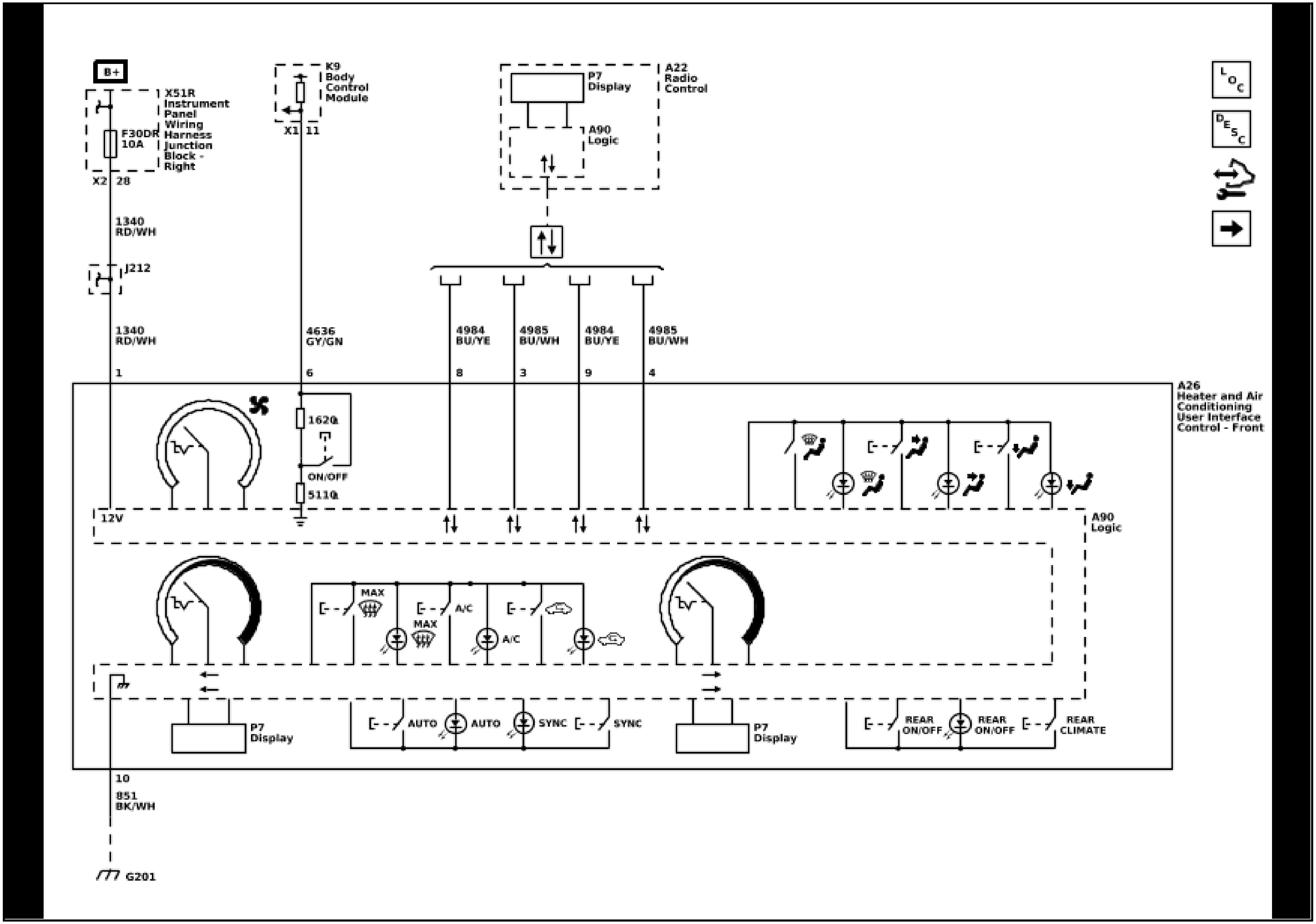
The conditioned air is distributed through the HVAC module for passenger comfort. The moisture removed from the passenger compartment will also change form, or condense, and is discharged from the HVAC module as water.

HVAC

HVAC - Automatic

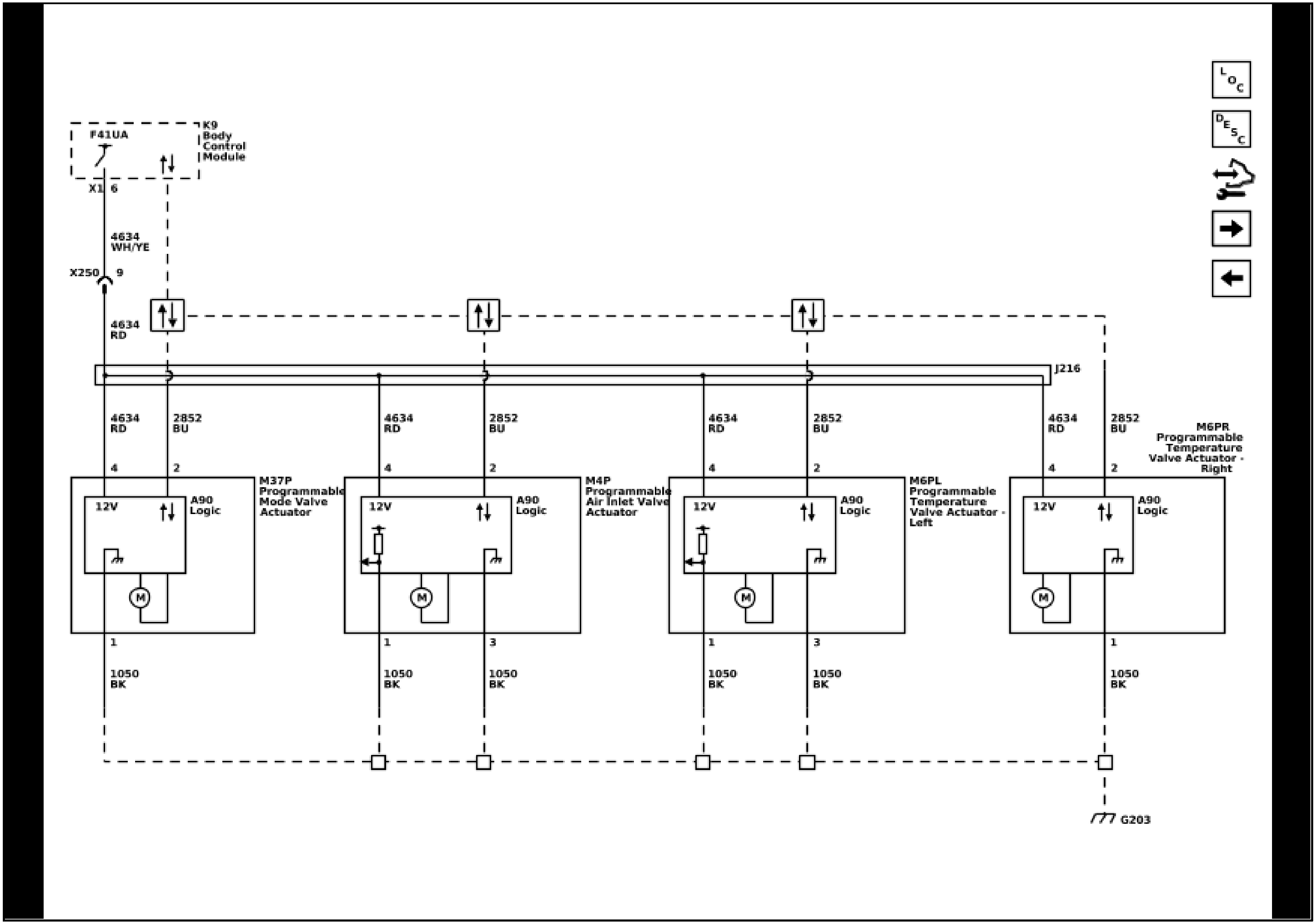
Schematic and Routing Diagrams

HVAC Schematics Object-ID=6152358 (HVAC Controls)

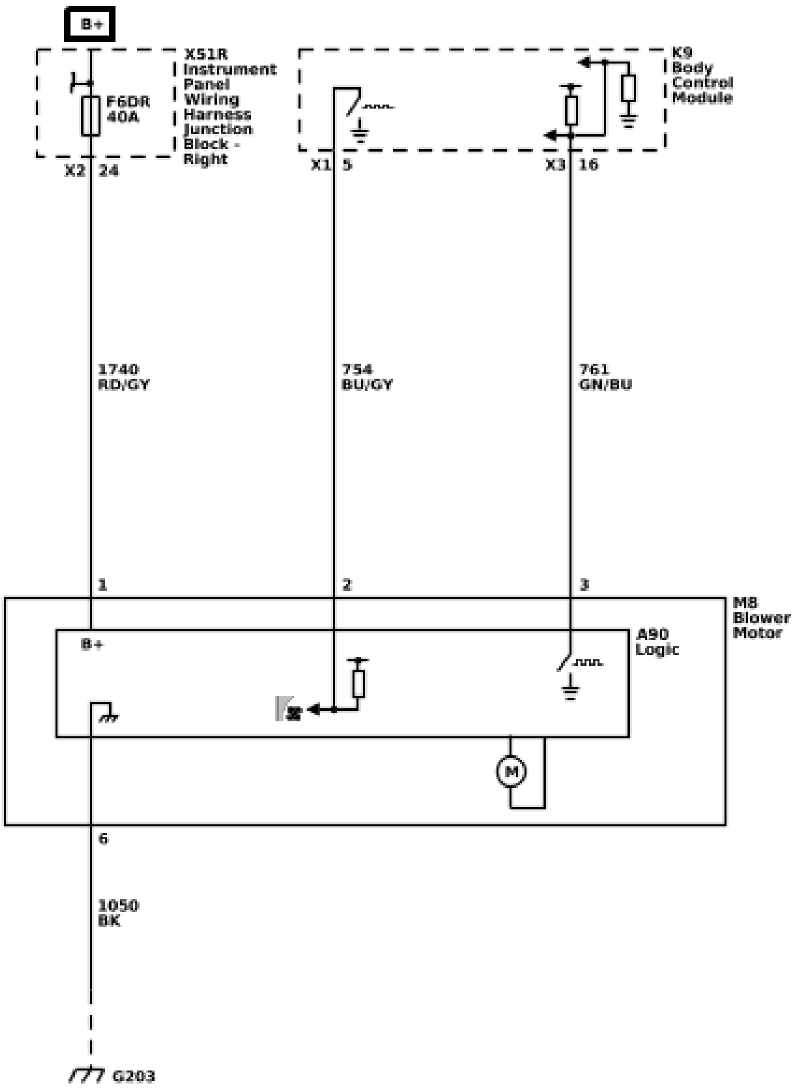

B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F30DR 10A
X2 28
1340 RD/WH
J212
1340 RD/WH
1
K9 Body Control Module
X1 11
4636 GY/GN
6
P7 Display
A22 Radio Control
A90 Logic
4984 BU/YE
4985 BU/WH
4984 BU/YE
4985 BU/WH
8
3
9
4
A26 Heater and Air Conditioning User Interface Control - Front
162Ω
ON/OFF
511Ω
12V
A90 Logic
MAX
MAX
A/C
A/C
AUTO
AUTO
SYNC
SYNC
REAR ON/OFF
REAR ON/OFF
REAR CLIMATE
P7 Display
P7 Display
10
851 BK/WH
G201

6150540

HVAC Schematics Object-ID=6152358 (Actuators)

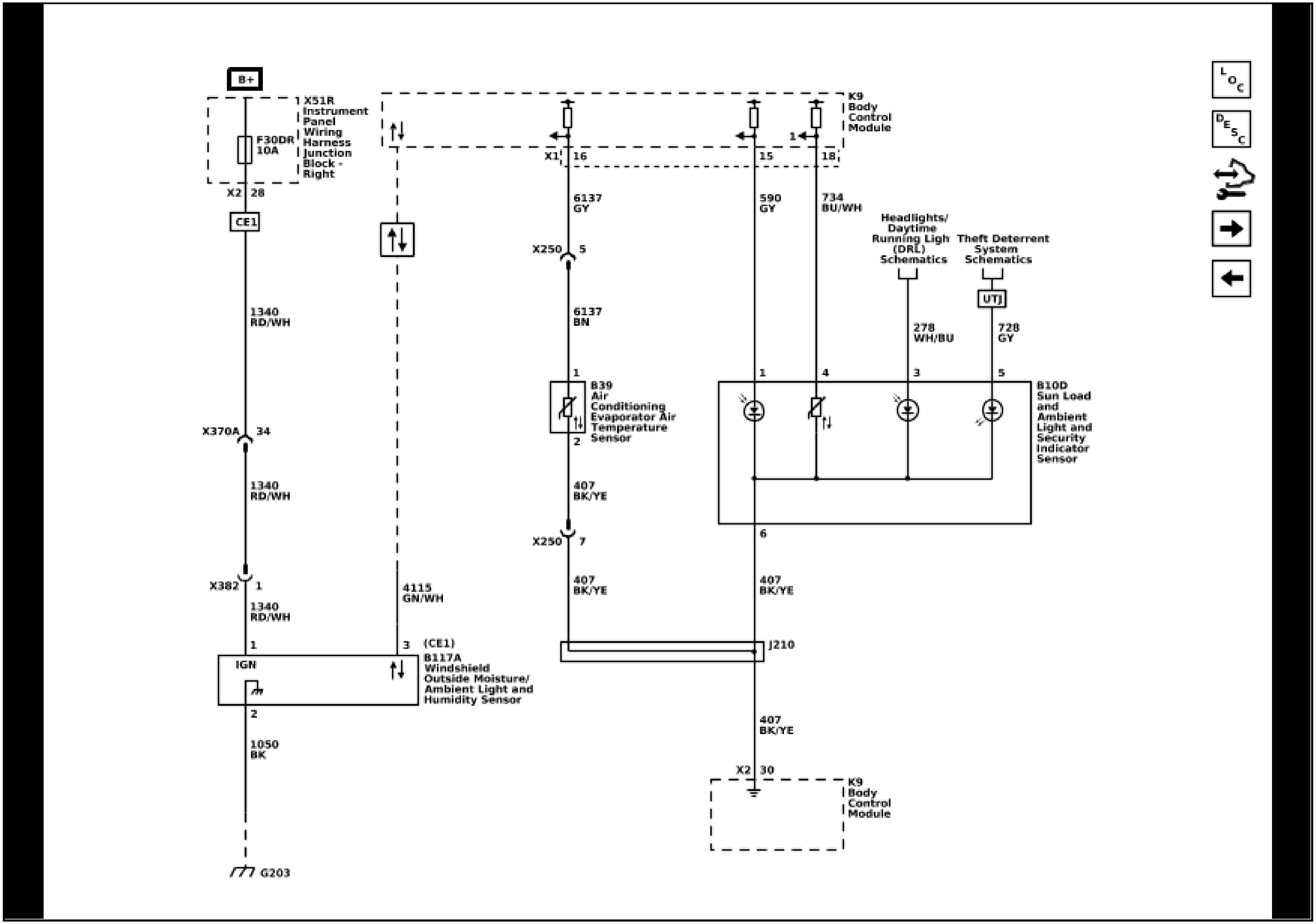

F41UA
K9
Body
Control
Module
X1 6
4634
WH/YE
X250 9
4634
RD
J216
4634
RD
2852
BU
4
2
12V
A90
Logic
M37P
Programmable
Mode Valve
Actuator
M
1
1050
BK
M4P
Programmable
Air Inlet Valve
Actuator
3
M6PL
Programmable
Temperature
Valve Actuator -
Left
M6PR
Programmable
Temperature
Valve Actuator -
Right
G203
6150541

HVAC Schematics Object-ID=6152358 (Blower Motor)


B+
X51R
Instrument
Panel
Wiring
Harness
Junction
Block -
Right
F6DR
40A
X2 24
K9
Body
Control
Module
X1 5
X3 16
1740
RD/GY
754
BU/GY
761
GN/BU
1
2
3
M8
Blower
Motor
A90
Logic
B+
M
6
1050
BK
G203

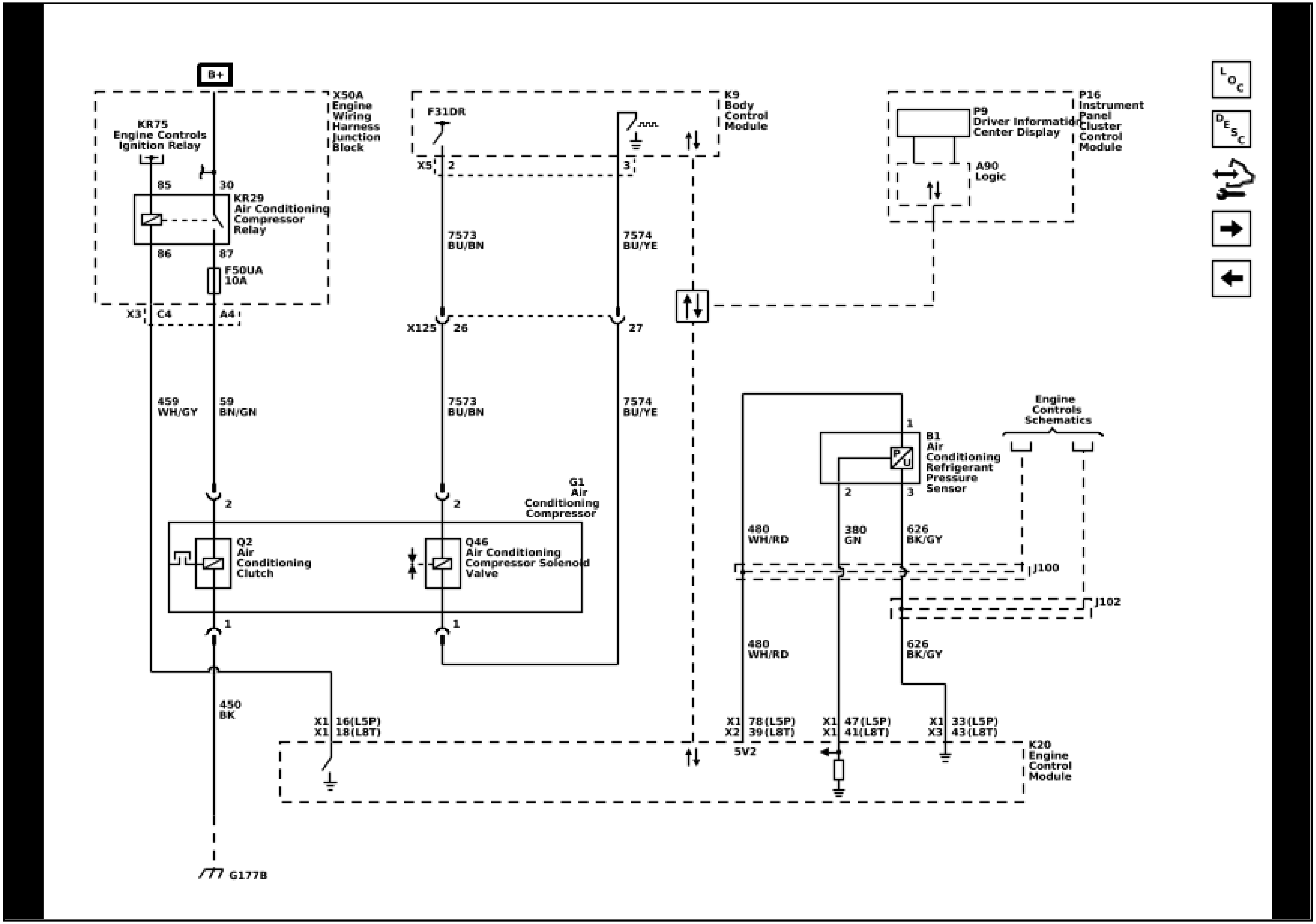
6150542

HVAC Schematics Object-ID=6152358 (Windshield Sensors and A/C Evaporator Temperature Sensor)

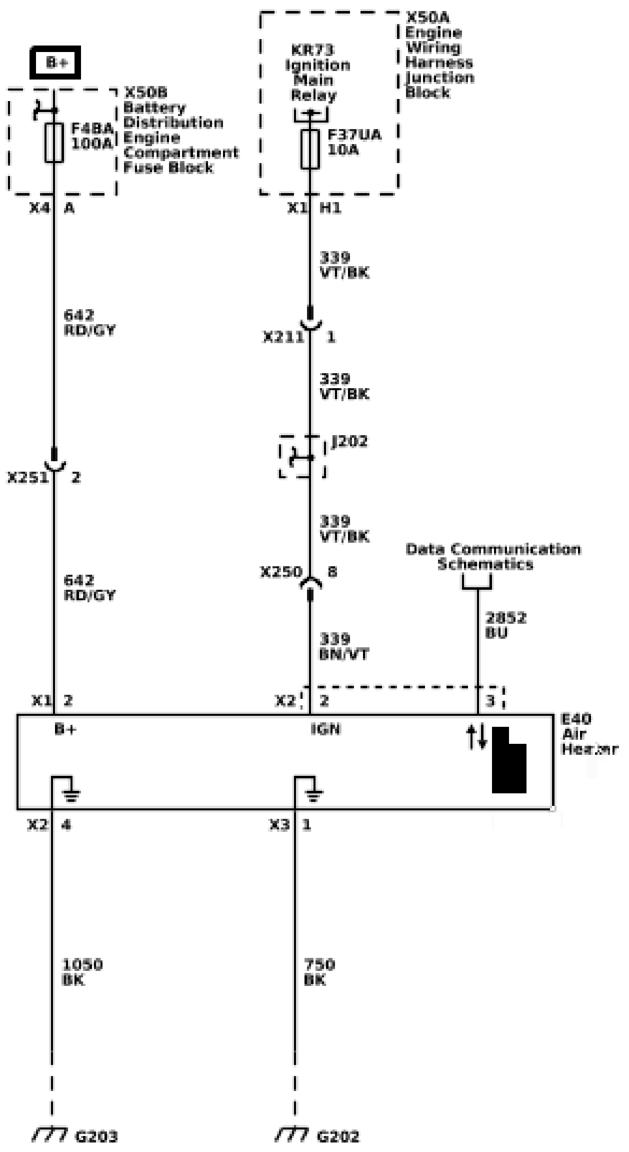

B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F30DR 10A
X2 28
CE1
1340 RD/WH
X370A 34
1340 RD/WH
X382 1
1340 RD/WH
1
IGN
2
1050 BK
G203
4115 GN/WH
3 (CE1)
B117A Windshield Outside Moisture/ Ambient Light and Humidity Sensor
K9 Body Control Module
X1 16
6137 GY
X250 5
6137 BN
1
B39 Air Conditioning Evaporator Air Temperature Sensor
2
407 BK/YE
X250 7
407 BK/YE
15
590 GY
1
18
734 BU/WH
Headlights/ Daytime Running Ligh (DRL) Schematics
Theft Deterrent System Schematics
UTJ
278 WH/BU
728 GY
1
4
3
5
B10D Sun Load and Ambient Light and Security Indicator Sensor
6
407 BK/YE
J210
407 BK/YE
X2 30
K9 Body Control Module

6150543

HVAC Schematics Object-ID=6152358 (A/C Compressor Controls)


B+
KR75
Engine Controls
Ignition Relay
X50A
Engine
Wiring
Harness
Junction
Block
85
30
KR29
Air Conditioning
Compressor
Relay
86
87
F50UA
10A
X3
C4
A4
F31DR
X5
2
3
K9
Body
Control
Module
P9
Driver Information
Center Display
A90
Logic
P16
Instrument
Panel
Cluster
Control
Module
7573
BU/BN
7574
BU/YE
X125
26
27
459
WH/GY
59
BN/GN
2
2
G1
Air
Conditioning
Compressor
Q2
Air
Conditioning
Clutch
Q46
Air Conditioning
Compressor Solenoid
Valve
1
1
450
BK
G177B
1
B1
Air
Conditioning
Refrigerant
Pressure
Sensor
2
3
Engine
Controls
Schematics
480
WH/RD
380
GN
626
BK/GY
J100
J102
X1 16(L5P)
X1 18(L8T)
X1 78(L5P)
X2 39(L8T)
5V2
X1 47(L5P)
X1 41(L8T)
X1 33(L5P)
X3 43(L8T)
K20
Engine
Control
Module
6150544

HVAC Schematics Object-ID=6152358 (Air Heater)


B+
X50B
Battery
Distribution
Engine
Compartment
Fuse Block
F4BA
100A
X4 A
642
RD/GY
X251 2
642
RD/GY
X1 2
B+
X50A
Engine
Wiring
Harness
Junction
Block
KR73
Ignition
Main
Relay
F37UA
10A
X1 H1
339
VT/BK
X211 1
339
VT/BK
J202
339
VT/BK
X250 8
339
BN/VT
X2 2
IGN
Data Communication
Schematics
2852
BU
3
E40
Air
Heater
X2 4
1050
BK
G203
X3 1
750
BK
G202

6150545

Description and Operation

Automatic HVAC Description and Operation

Object-ID=6253101 Owner=Roman, Christopher LMD=27-Mar-2023 LMB=Roman, Christopher

The air temperature and the air delivery description and operation are divided into the following:

- HVAC Control Components
- Air Speed and Blower Motor
- Air Delivery
- Recirculation Operation
- Heating and A/C Operation
- Automatic Operation
- Engine Coolant and A/C System Refrigerant

HVAC Control Components

K9 Body Control Module

The body control module (BCM) is a CAN device that interfaces between the operator and the HVAC system to maintain and control desired air temperature and air distribution settings. The BCM provides a device ON-Signal for the HVAC controls. The BCM provides blower, air delivery mode and air temperature control.

A26 Heater and Air Conditioning User Interface Control - Front

The HVAC control contains all switches which are required to control the functions of HVAC and serve as interface between the operator and the BCM. The selected values are passed to the BCM via serial data.

Actuators

Doors in the HVAC case assembly are used to control air flow. The BCM operates the doors through the use of actuators, with one actuator being used for each door. The system has the following air control doors and associated actuators: mode, left and right temperature, and recirculation.

Each actuator used in the system is a LIN device controlled by the BCM. The BCM supplies a 12 V reference voltage to the actuators, and ground is provided by the wiring harness. When the BCM sends a request message to the actuator, the actuator then operates internal stepper motors to move the door to the required position.

Duct Air Temperature

Physical duct air temperature sensors are not used with the system. The air temperature in the air distribution ducts is calculated by the BCM based on the engine coolant temperature, coolant flow, evaporator temperature, outside air temperature, solar load, blower motor speed, air inlet door position, and temperature door position information. The BCM uses the values to calculate actuator position.

B39 Air Conditioning Evaporator Air Temperature Sensor

The evaporator temperature sensor is a 2-wire negative temperature coefficient thermistor. The sensor operates within a temperature range of −40 to +85°C (−40 to +185°F). The sensor is installed near the evaporator core to measure the air temperature exiting the core.

Based on vehicle operating conditions and operator settings, the HVAC software algorithms will determine a target evaporator air temperature. The operation of the compressor solenoid will be adjusted as needed to quickly reach and maintain the targeted temperature.

B1 Air Conditioning Refrigerant Pressure Sensor

The A/C refrigerant pressure sensor is a 3-wire piezoelectric pressure transducer. A 5 V reference voltage, low reference, and signal circuits enable the sensor to operate. The A/C pressure signal can be between 0.2–4.8 V. When the A/C refrigerant pressure is low, the signal value is near 0 V. When the A/C refrigerant pressure is high, the signal value is near 5 V. The engine control module (ECM) converts the voltage signal to a pressure value. When pressure is too high or too low, the ECM will not allow the A/C compressor clutch to engage.

G1 Air Conditioning Compressor

The A/C compressor uses a conventional belt driven magnetic clutch to engage and mechanically turn the compressor. When the A/C switch is pressed, the BCM sends an A/C request message to the ECM via serial data. If specific criteria is met, the ECM then grounds the A/C compressor clutch relay control circuit, which will switch the A/C compressor clutch relay. With the relay contacts closed, battery voltage is supplied to the permanently grounded A/C compressor clutch. The A/C compressor clutch will then be activated.

This A/C system utilizes a variable displacement solenoid valve to alter the amount of displacement created by the turning of the compressor. The BCM provides both battery voltage and a pulse width modulated ground to the Q46 Air Conditioning Compressor Solenoid Valve. When the A/C switch is pressed, the BCM grounds the variable displacement solenoid using a (PWM) signal in order to determine the amount of compressor displacement. The performance of the A/C compressor is regulated based on cooling load.

B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor (CE1)

The windshield outside moisture, ambient light, and humidity sensor is used by the wiper system to determine exterior moisture, and by the HVAC system for inside windshield temperature and humidity.

The sensors are part of a LIN windshield sensor array, and the sensor values are transmitted to the BCM via serial data.

When equipped, this sensor assembly provides information to the HVAC system about:

- Relative humidity level at windshield (passenger compartment side)
- Temperature of the windshield (passenger compartment side)
- Temperature of the humidity sensor element

The relative humidity sensor measures the relative humidity of the passenger compartment side of the windshield. It also detects the temperature of the windshield surface on the passenger compartment side. Both values are used as control inputs for the BCM application to calculate the fog risk on windshield compartment side and ability to reduce fuel consumption by decreasing A/C compressor power to a minimum without causing any fog. The sensor will also enable partial recirculation mode in order to improve heat-up performance of the passenger compartment under cold ambient temperature conditions without the risk of mist build-up on the windshield. The humidity sensor element temperature sensor supplies the temperature of the humidity sensor element. It is only needed if the thermal contact between the humidity sensing element and the inside windshield surface is not sufficient.

B10D Sun Load and Ambient Light and Security Indicator Sensor

The ambient light/sunload sensor includes the solar sensor and passenger compartment temperature sensor.

The solar sensor is connected to a low reference and 5 V supply through the BCM. As the sunload increases, the sensor signal voltage also increases and vice versa. The signal provided to the BCM varies between 1.2–4.85 V.

The passenger compartment temperature sensor is a negative temperature coefficient thermistor, connected to a low reference and 5 V supply through the BCM. As the air temperature increases, the sensor resistance decreases. The signal varies between 0–5 V.

Bright or high intensity light can cause the vehicles interior temperature to increase. The HVAC system uses the sensor values and compensates for the increased temperature to maintain the system settings.

E40 Air Heater (C32)

Some models are equipped with an auxiliary electric heater to assist in warming the passenger compartment when the engine coolant has not sufficiently warmed to operating temperature. The air heater is a LIN device. The heater uses an ignition circuit, battery voltage circuit, ground circuit, and a serial data signal from the BCM to operate.

The heater is a 12 V positive temperature coefficient heating element located in the HVAC case just downstream of the traditional heater core. The system will activate the heater when the outside temperature is less than approximately 8°C (46°F), the engine coolant temperature is less than approximately 75°C (167°F), and the temperature blend door is commanded to the full hot position.

Air Speed and M8 Blower Motor

The selected blower motor speed is passed from the controls to the BCM via serial data.

The motor uses a fused B+, ground, control, and speed output signal circuits to operate. The blower motor speed is controlled by increasing or decreasing the voltage drop on the ground side of the blower motor speed control circuit. The BCM provides a low side pulse width modulation (PWM) signal to the blower motor to request a specific motor speed. The blower motor internal circuitry translates the PWM signal and drives the motor accordingly.

The blower motor has a signal wire used to output a speed signal. The signal is monitored by the BCM. The BCM monitors the blower motor speed to modify the total commanded engine coolant flow rate, which is a percentage of available coolant flow sent to the heater core for occupant comfort and windshield defrosting. The HVAC Blower Speed is monitored so that the ECM can optimize engine coolant flow for fuel economy and emissions.

Afterblow

Afterblow is a feature that dries the evaporator core by operating the blower motor after the engine is turned OFF under certain conditions. This reduces the amount of moisture that can create undesirable odors. For additional information on afterblow, the default setting, and changing the setting, refer to Afterblow Configuration.

Air Delivery

The BCM controls the distribution of air by the use of recirculation and mode door actuators. The modes that may be selected are:

- Defrost: windshield outlet
- Panel: dashboard outlets
- Floor: front footwell outlets
- Defog: defrost + floor
- Bi-level: panel + floor
- Tri-level: panel + defrost + floor
- Hi-level: panel + defrost

The desired air distribution mode can be selected with the air distribution switches at the HVAC control. The HVAC control delivers the values to the BCM via serial data. The BCM sends a request to the mode door actuator to move the door to the required position. Depending on the position of the door, air is distributed through various ducts leading to the outlets in the dash. When defrost airflow is active, the BCM will move the recirculation actuator to outside air, to aid in reducing window fogging. When defrost is selected the blower motor will be activated, regardless of the coolant temperature. A/C is available in all modes.

Refer to the owners manual for operation of the HVAC controls and mode selection.

Recirculation Operation

The recirculation switch is integrated into the HVAC control. The selected recirculation setting is sent to the BCM via serial data. The BCM controls the air intake using the recirculation actuator. In recirculation mode the recirculation door is positioned to block outside air from entering and circulate the air within the vehicle. In outside air mode the recirculation door is positioned to route outside air into the vehicle.

Recirculation is only available if the defrost mode is not active. When the defrost mode is active, the recirculation actuator positions the recirculation door so that outside air is circulated to the windshield to reduce fogging.

In automatic mode the values of the sensors are used as inputs for the BCM to calculate the fog risk on the passenger compartment side of the windshield. The A/C compressor and the defrost mode may be activated to prevent or remove fog on the passenger compartment side of the windshield.

In automatic mode, a partial recirculation mode may be commanded to accelerate cabin heating or cooling and reduce energy usage. The recirculation indicator remains illuminated at all times, regardless of the actual operating mode determined by the system.

Heating and A/C Operation

The purpose of the heating and A/C system is to provide heated and cooled air to the interior of the vehicle. The A/C system will also remove humidity from the interior and reduce windshield fogging. Regardless of the temperature setting, the following may affect the rate that the HVAC system can achieve the desired temperature:

- Recirculation setting
- Difference between inside and desired temperature
- Blower motor speed setting
- Mode setting
- Dashboard outlet open/closed position

When the A/C switch or the AUTO switch is pressed, the HVAC control sends a signal to the BCM via serial data. The BCM evaluates this signal and sends an A/C request signal to the ECM via CAN-Bus. The ECM checks all preconditions before releasing and if all conditions are met sends a release signal back to the BCM. The A/C compressor is activated by the BCM. The BCM supplies battery voltage to the A/C compressor solenoid. When the A/C switch is pressed, the BCM provides a pulse width modulation (PWM) signal to the A/C compressor solenoid in order to command the performance of the A/C compressor. The performance of the A/C compressor is regulated using evaporator temperature and engine load.

The A/C indicator does not indicate the compressor is currently active. The A/C indicator shows that A/C has been requested and the system will activate the compressor as needed.

The following conditions must be met in order to activate the A/C compressor:

- Battery voltage is between 9–18 V
- Engine coolant temperature is less than 124°C (255°F)
- Engine speed is greater than 600 RPM
- Engine speed is less than 5 500 RPM
- A/C high side pressure is between 269–2 929 kPa (39–425 PSI)
- Throttle position is less than 100%
- Evaporator temperature is greater than 3°C (38°F)
- ECM does not detect immoderate torque load
- ECM does not detect insufficient idle quality
- The ambient temperature is above 1°C (34°F)

The sensor information is used by the ECM to determine the following:

- The A/C high side pressure
- An A/C system load on the engine
- An immoderate A/C high side pressure
- The heat load at the A/C condenser

The air streams into the passenger compartment through the heater core and the evaporator core. The air temperature actuator drives the mixed air door to direct the airflow. If the interior temperature should be increased, the mixed air door is put into the position in which more air streams through the heater core. If the interior temperature should be decreased, the mixed air door is put into the position in which more air streams through the evaporator core.

Automatic Operation

In automatic operation, the BCM maintains the comfort level inside of the vehicle by controlling the A/C compressor solenoid, the blower motor, the air temperature actuators, mode actuator and recirculation actuator.

The automatic mode indicator shows that the system is in full automatic operation. If an individual setting is changed (excluding temperature), the automatic indicator will turn off, and that function will enter manual control. All other functions will remain under automatic control unless manually changed.

To put the HVAC system in automatic mode, the following is required:

1. The auto switch must be activated.
2. The air temperature switch must not be in either the full hot or full cold position.

Once the desired temperature is reached, the blower motor, mode, recirculation and temperature actuators automatically adjust to maintain the temperature selected. The BCM performs the following functions to maintain the desired air temperature:

- Monitors the following:
  - – Ambient (outside) air temperature sensor
  - – Passenger compartment temperature sensor
  - – Calculated front duct air temperatures
  - – Windshield temperature and inside moisture sensor
  - – Evaporator temperature sensor
  - – Ambient light/sunload sensor
- Regulate the blower motor speed
- Position the air temperature actuators
- Position the mode door actuators
- Position the recirculation actuator
- Control of the A/C compressor solenoid

When the temperature setting is set to full hot, the blower speed will increase gradually as the coolant warms to normal operating temperature. When normal engine operating temperature is reached the blower stays on high speed and the air temperature actuators stays in the full heat position.

When the temperature setting is set to full cold, the blower will immediately operate at high speed and the air temperature actuators move to full cold position. The mode actuator moves to the panel position and the recirculation actuator moves to the recirculation position.

Under cold ambient temperatures, the automatic HVAC system provides heat in the most efficient manner. The operator can select an extreme temperature setting but the system will not warm the vehicle any faster. Under warm ambient temperatures, the automatic HVAC system also provides air conditioning in the most efficient manner. Selecting an extreme cool temperature will not cool the vehicle any faster.

In automatic mode the values of the windshield temperature and inside moisture sensor are used as control inputs for the BCM application to calculate the fog risk on the passenger compartment side of the windshield and ability to reduce fuel consumption by decreasing A/C compressor power to a minimum without causing any fog. The A/C compressor and the defrost mode are activated to prevent or remove fog on the passenger compartment side of the windshield. The sensor will also enable partial recirculation mode in order to improve heat-up performance of the passenger compartment under cold ambient temperature conditions without the risk of mist build-up on the windshield.

Engine Coolant and A/C System Refrigerant

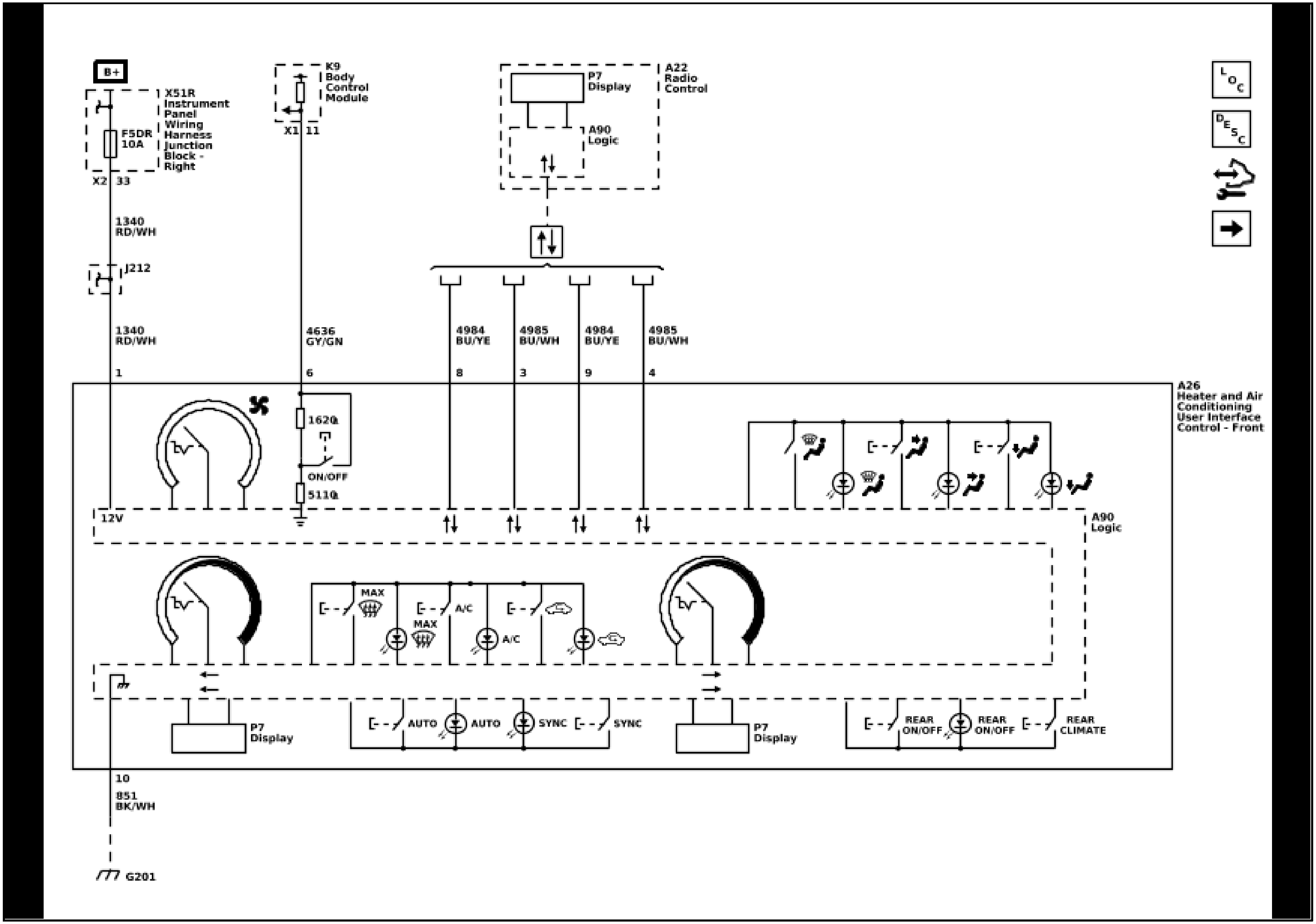
For information on engine coolant, coolant flow, A/C refrigerant, and the A/C refrigerant cycle, refer to *Heating and Air Conditioning System Description and Operation on page 6-3*.

HVAC

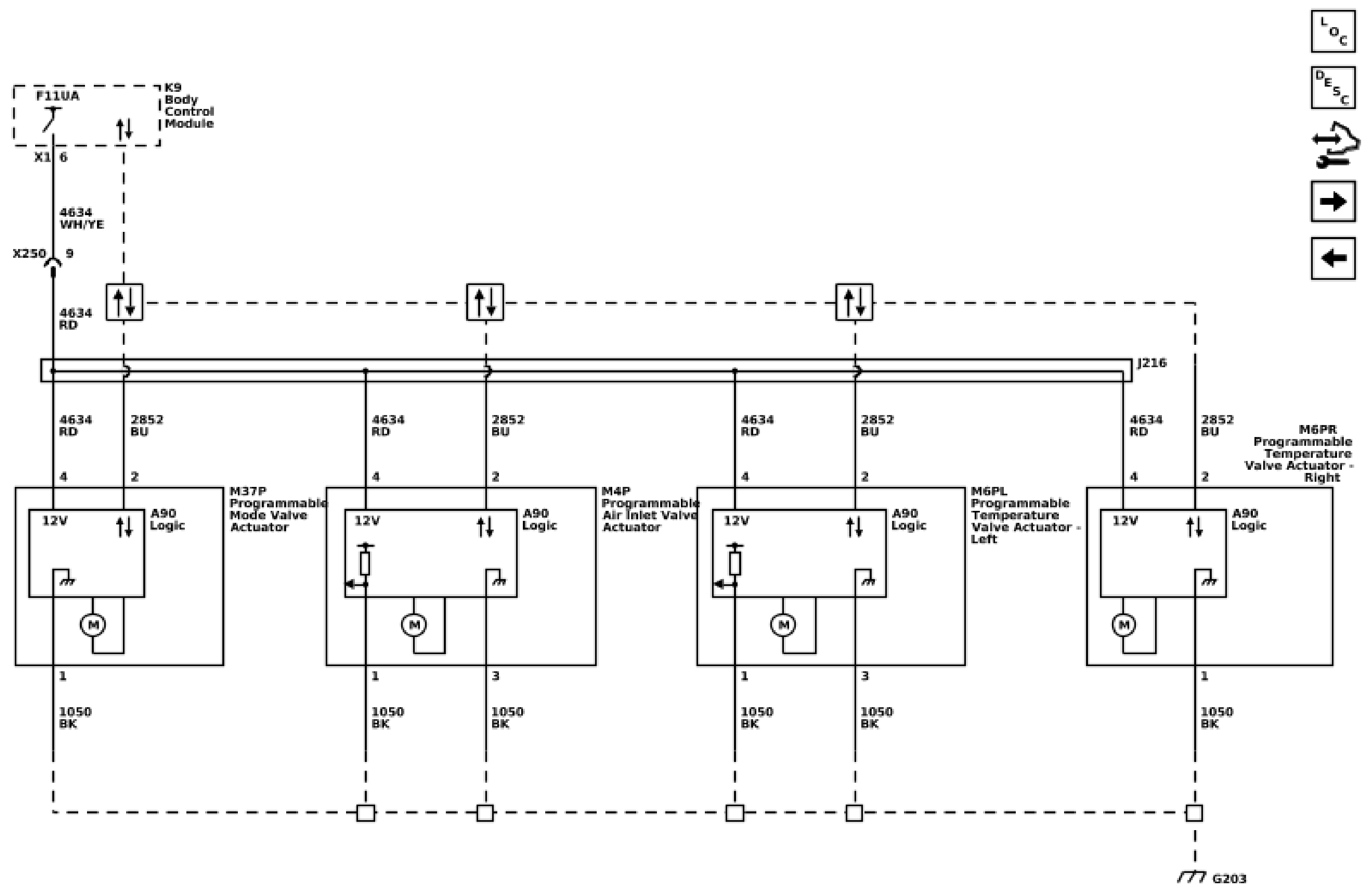
HVAC - Manual

Schematic and Routing Diagrams

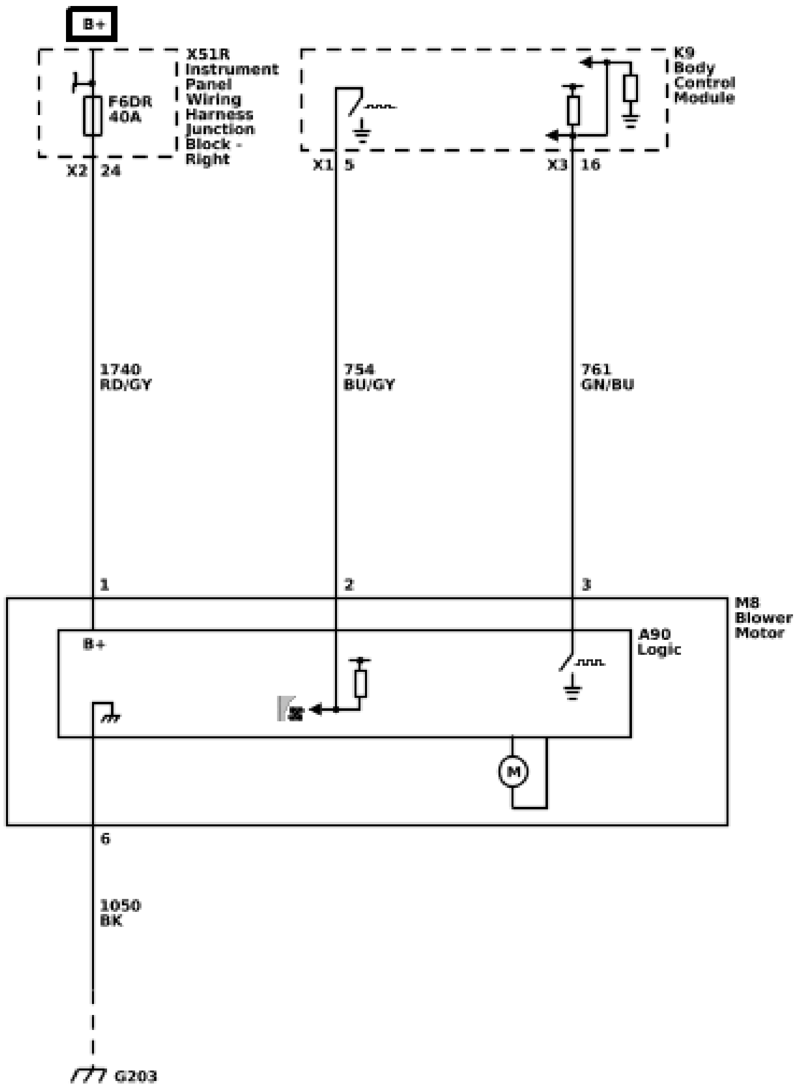
HVAC Schematics Object-ID=6152357 (HVAC Controls)


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F5DR 10A
X2 33
1340 RD/WH
J212
1340 RD/WH
1
K9 Body Control Module
X1 11
4636 GY/GN
6
1620Ω
ON/OFF
511Ω
A22 Radio Control
P7 Display
A90 Logic
4984 BU/YE
8
4985 BU/WH
3
4984 BU/YE
9
4985 BU/WH
4
A26 Heater and Air Conditioning User Interface Control - Front
A90 Logic
12V
MAX
MAX
A/C
A/C
P7 Display
AUTO
AUTO
SYNC
SYNC
P7 Display
REAR ON/OFF
REAR ON/OFF
REAR CLIMATE
10
851 BK/WH
G201
6150534

HVAC Schematics Object-ID=6152357 (Actuators)

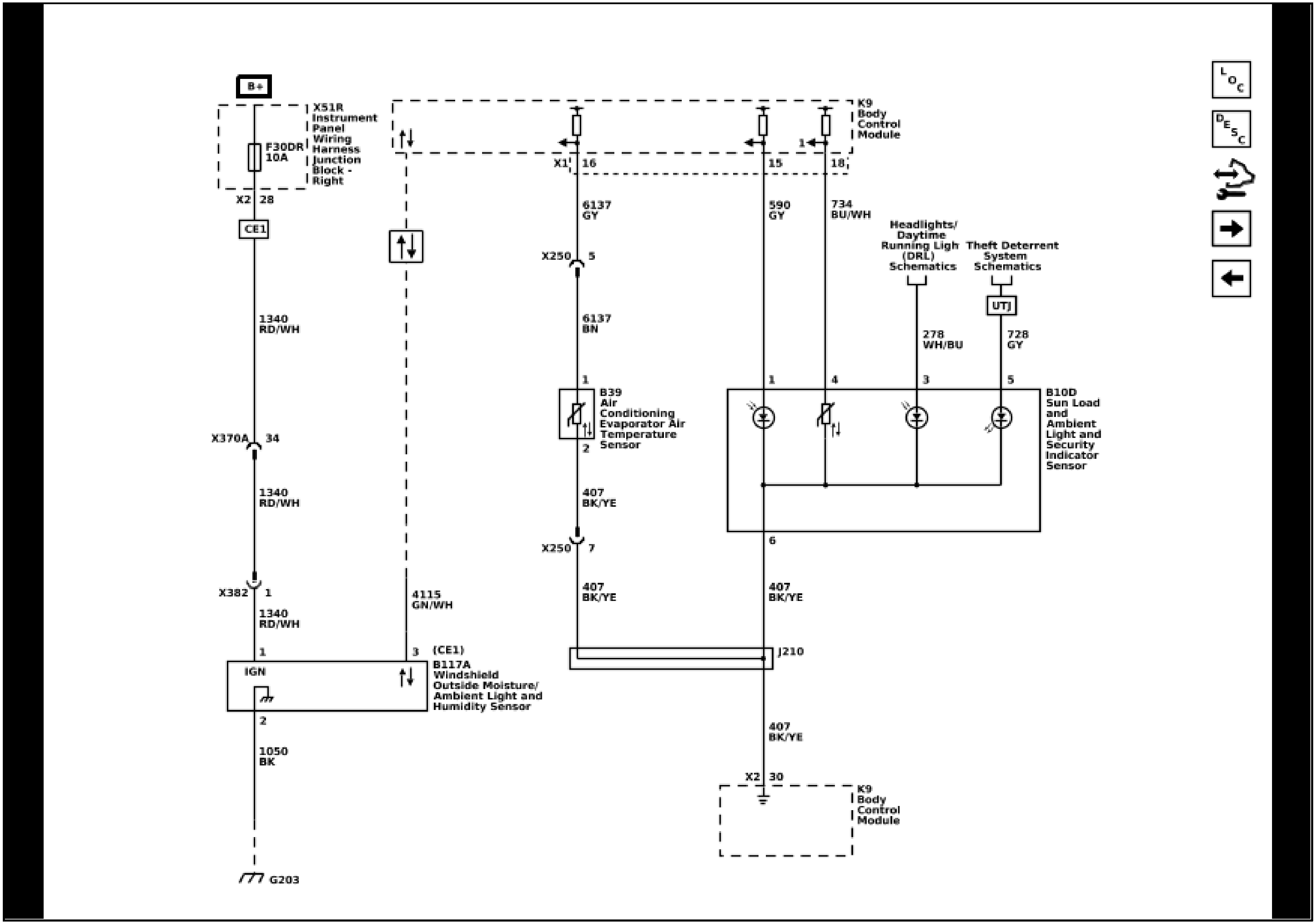

F11UA
K9 Body Control Module
X1 6
4634 WH/YE
X250 9
4634 RD
J216
4634 RD
2852 BU
4
2
12V
A90 Logic
M37P Programmable Mode Valve Actuator
M4P Programmable Air Inlet Valve Actuator
M6PL Programmable Temperature Valve Actuator - Left
M6PR Programmable Temperature Valve Actuator - Right
M
1
3
1050 BK
G203
L O C
D E S C
6150535

HVAC Schematics Object-ID=6152357 (Blower Motor)

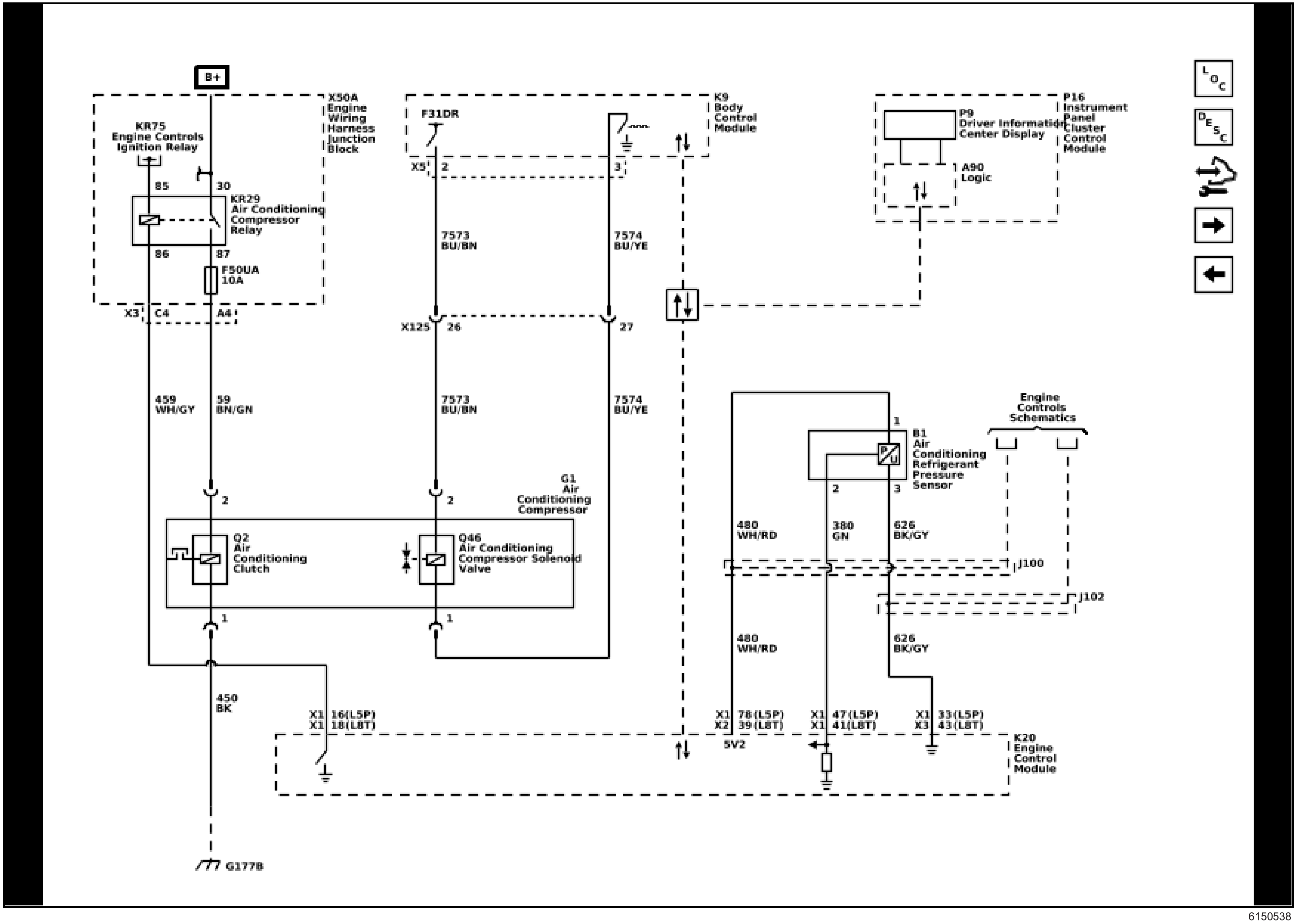

B+
X51R
Instrument
Panel
Wiring
Harness
Junction
Block -
Right
F6DR
40A
X2 24
K9
Body
Control
Module
X1 5
X3 16
1740
RD/GY
754
BU/GY
761
GN/BU
1
2
3
M8
Blower
Motor
A90
Logic
B+
M
6
1050
BK
G203

6150536

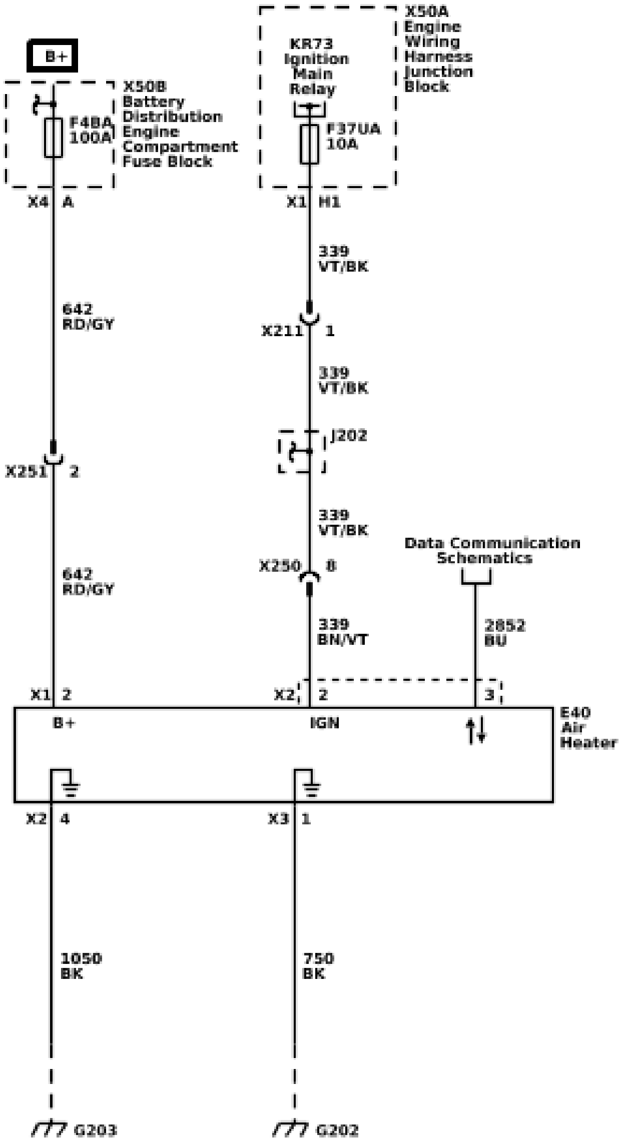
HVAC Schematics Object-ID=6152357 (Windshield Sensors and A/C Evaporator Temperature Sensor)


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F30DR 10A
X2 28
CE1
1340 RD/WH
X370A 34
1340 RD/WH
X382 1
1340 RD/WH
1
IGN
2
1050 BK
G203
4115 GN/WH
3 (CE1)
B117A Windshield Outside Moisture/ Ambient Light and Humidity Sensor
K9 Body Control Module
X1 16
15
18
1
6137 GY
X250 5
6137 BN
1
B39 Air Conditioning Evaporator Air Temperature Sensor
2
407 BK/YE
X250 7
407 BK/YE
J210
590 GY
734 BU/WH
Headlights/ Daytime Running Ligh (DRL) Schematics
Theft Deterrent System Schematics
UTJ
278 WH/BU
728 GY
1
4
3
5
B10D Sun Load and Ambient Light and Security Indicator Sensor
6
407 BK/YE
407 BK/YE
X2 30
K9 Body Control Module
LOC
DESC
6150537

HVAC Schematics Object-ID=6152357 (A/C Compressor Controls)


B+
X50A Engine Wiring Harness Junction Block
KR75 Engine Controls Ignition Relay
85
30
KR29 Air Conditioning Compressor Relay
86
87
F50UA 10A
X3
C4
A4
459 WH/GY
59 BN/GN
K9 Body Control Module
F31DR
X5
2
3
7573 BU/BN
7574 BU/YE
X125
26
27
P16 Instrument Panel Cluster Control Module
P9 Driver Information Center Display
A90 Logic
G1 Air Conditioning Compressor
Q2 Air Conditioning Clutch
Q46 Air Conditioning Compressor Solenoid Valve
2
1
450 BK
G177B
B1 Air Conditioning Refrigerant Pressure Sensor
Engine Controls Schematics
480 WH/RD
380 GN
626 BK/GY
J100
J102
X1 16(L5P)
X1 18(L8T)
X1 78(L5P)
X2 39(L8T)
5V2
X1 47(L5P)
X1 41(L8T)
X1 33(L5P)
X3 43(L8T)
K20 Engine Control Module
6150538

HVAC Schematics Object-ID=6152357 (Air Heater)


B+
X50B
Battery
Distribution
Engine
Compartment
Fuse Block
F48A
100A
X4 A
642
RD/GY
X251 2
642
RD/GY
X1 2
B+
X50A
Engine
Wiring
Harness
Junction
Block
KR73
Ignition
Main
Relay
F37UA
10A
X1 H1
339
VT/BK
X211 1
339
VT/BK
J202
339
VT/BK
X250 8
339
BN/VT
X2 2
IGN
Data Communication
Schematics
2852
BU
3
E40
Air
Heater
X2 4
1050
BK
G203
X3 1
750
BK
G202

6150539

Description and Operation

Manual HVAC Description and Operation

Object-ID=5951051 Owner=Roman, Christopher LMD=27-Mar-2023 LMB=Roman, Christopher

The air temperature and the air delivery description and operation are divided into the following:

- HVAC Control Components
- Air Speed and Blower Motor
- Air Delivery
- Heating and A/C Operation
- Recirculation Operation
- Engine Coolant and A/C System Refrigerant

HVAC Control Components

K9 Body Control Module

The body control module (BCM) is a CAN device that interfaces between the operator and the HVAC system to maintain and control desired air temperature and air distribution settings. The BCM provides a device ON-Signal for the HVAC controls. The BCM provides blower, air delivery mode and air temperature control.

A26 Heater and Air Conditioning User Interface Control - Front

The HVAC control contains all switches which are required to control the functions of HVAC and serve as interface between the operator and the BCM. The selected values are passed to the BCM via serial data.

Actuators

Doors in the HVAC case assembly are used to control air flow. The BCM operates the doors through the use of actuators, with one actuator being used for each door. The system has the following air control doors and associated actuators: mode, temperature, and recirculation.

Each actuator used in the system is a LIN device controlled by the BCM. The BCM supplies a 12 V reference voltage to the actuators, and ground is provided by the wiring harness. When the BCM sends a request message to the actuator, the actuator then operates internal stepper motors to move the door to the required position.

Air Speed and M8 Blower Motor

The selected blower motor speed is passed from the controls to the BCM via serial data.

The motor uses a fused B+, ground, control, and speed output signal circuits to operate. The blower motor speed is controlled by increasing or decreasing the voltage drop on the ground side of the blower motor speed control circuit. The BCM provides a low side pulse width modulation (PWM) signal to the blower motor to request a specific motor speed. The blower motor internal circuitry translates the PWM signal and drives the motor accordingly.

The blower motor has a signal wire used to output a speed signal. The signal is monitored by the BCM. The BCM monitors the blower motor speed to modify the total commanded engine coolant flow rate, which is a percentage of available coolant flow sent to the heater core for occupant comfort and windshield defrosting. The HVAC Blower Speed is monitored so that the ECM can optimize engine coolant flow for fuel economy and emissions.

Afterblow

Afterblow is a feature that dries the evaporator core by operating the blower motor after the engine is turned OFF under certain conditions. This reduces the amount of moisture that can create undesirable odors. For additional information on afterblow, the default setting, and changing the setting, refer to Afterblow Configuration.

B39 Air Conditioning Evaporator Air Temperature Sensor

The evaporator temperature sensor is a 2-wire negative temperature coefficient thermistor. The sensor operates within a temperature range of −40 to +85°C (−40 to +185°F). The sensor is installed near the evaporator core to measure the air temperature exiting the core.

Based on vehicle operating conditions and operator settings, the HVAC software algorithms will determine a target evaporator air temperature. The operation of the compressor solenoid will be adjusted as needed to quickly reach and maintain the targeted temperature.

B1 Air Conditioning Refrigerant Pressure Sensor

The A/C refrigerant pressure sensor is a 3-wire piezoelectric pressure transducer. A 5 V reference voltage, low reference, and signal circuits enable the sensor to operate. The A/C pressure signal can be between 0.2–4.8 V. When the A/C refrigerant pressure is low, the signal value is near 0 V. When the A/C refrigerant pressure is high, the signal value is near 5 V. The engine control module (ECM) converts the voltage signal to a pressure value. When pressure is too high or too low, the ECM will not allow the A/C compressor clutch to engage.

G1 Air Conditioning Compressor

The A/C compressor uses a conventional belt driven magnetic clutch to engage and mechanically turn the compressor. When the A/C switch is pressed, the BCM sends an A/C request message to the ECM via serial data. If specific criteria is met, the ECM then grounds the A/C compressor clutch relay control circuit, which will switch the A/C compressor clutch relay. With the relay contacts closed, battery voltage is supplied to the permanently grounded A/C compressor clutch. The A/C compressor clutch will then be activated.

This A/C system utilizes a variable displacement solenoid valve to alter the amount of displacement created by the turning of the compressor. The BCM provides both battery voltage and a pulse width modulated ground to the Q46 Air Conditioning Compressor Solenoid Valve. When the A/C switch is pressed, the BCM grounds the variable displacement solenoid using a (PWM) signal in order to determine the amount of compressor displacement. The performance of the A/C compressor is regulated based on cooling load.

E40 Air Heater (C32)

Some models are equipped with an auxiliary electric heater to assist in warming the passenger compartment when the engine coolant has not sufficiently warmed to operating temperature. The air heater is a LIN device. The heater uses an ignition circuit, battery voltage circuit, ground circuit, and a serial data signal from the BCM to operate.

The heater is a 12 V positive temperature coefficient heating element located in the HVAC case just downstream of the traditional heater core. The system will activate the heater when the outside temperature is less than approximately 8°C (46°F), the engine coolant temperature is less than approximately 75°C (167°F), and the temperature blend door is commanded to the full hot position.

Air Delivery

The BCM controls the distribution of air by the use of recirculation and mode door actuators. The modes that may be selected are:

- Defrost: windshield outlet
- Panel: dashboard outlets
- Floor: front footwell outlets
- Defog: defrost + floor
- Bi-level: panel + floor
- Tri-level: panel + defrost + floor
- Hi-level: panel + defrost

The desired air distribution mode can be selected with the air distribution switches at the HVAC control. The HVAC control delivers the values to the BCM via serial data. The BCM sends a request to the mode door actuator to move the door to the required position. Depending on the position of the door, air is distributed through various ducts leading to the outlets in the dash. When defrost airflow is active, the BCM will move the recirculation actuator to outside air, to aid in reducing window fogging. When defrost is selected the blower motor will be activated, regardless of the coolant temperature. A/C is available in all modes.

Refer to the owners manual for operation of the HVAC controls and mode selection.

Recirculation Operation

The recirculation switch is integrated into the HVAC control. The selected recirculation setting is sent to the BCM via serial data. The BCM controls the air intake using the recirculation actuator. In recirculation mode the recirculation door is positioned to block outside air from entering and circulate the air within the vehicle. In outside air mode the recirculation door is positioned to route outside air into the vehicle.

Recirculation is only available if the defrost mode is not active. When the defrost mode is active, the recirculation actuator positions the recirculation door so that outside air is circulated to the windshield to reduce fogging.

Heating and A/C Operation

The purpose of the heating and A/C system is to provide heated and cooled air to the interior of the vehicle. The A/C system will also remove humidity from the interior and reduce windshield fogging. Regardless of the temperature setting, the following may affect the rate that the HVAC system can achieve the desired temperature:

- Recirculation setting
- Difference between inside and desired temperature
- Blower motor speed setting
- Mode setting
- Dashboard outlet open/closed position

When the A/C switch or the AUTO switch is pressed, the HVAC control sends a signal to the BCM via serial data. The BCM evaluates this signal and sends an A/C request signal to the ECM via CAN-Bus. The ECM checks all preconditions before releasing and if all conditions are met sends a release signal back to the BCM. The A/C compressor is activated by the BCM. The BCM supplies battery voltage to the A/C compressor solenoid. When the A/C switch is pressed, the BCM provides a pulse width modulation (PWM) signal to the A/C compressor solenoid in order to command the performance of the A/C compressor. The performance of the A/C compressor is regulated using evaporator temperature and engine load.

The A/C indicator does not indicate the compressor is currently active. The A/C indicator shows that A/C has been requested and the system will activate the compressor as needed.

The following conditions must be met in order to activate the A/C compressor:

- Battery voltage is between 9–18 V
- Engine coolant temperature is less than 124°C (255°F)
- Engine speed is greater than 600 RPM
- Engine speed is less than 5 500 RPM
- A/C high side pressure is between 269–2 929 kPa (39–425 PSI)
- Throttle position is less than 100%
- Evaporator temperature is greater than 3°C (38°F)
- ECM does not detect immoderate torque load
- ECM does not detect insufficient idle quality
- The ambient temperature is above 1°C (34°F)

The sensor information is used by the ECM to determine the following:

- The A/C high side pressure
- An A/C system load on the engine
- An immoderate A/C high side pressure
- The heat load at the A/C condenser

The air streams into the passenger compartment through the heater core and the evaporator core. The air temperature actuator drives the mixed air door to direct the airflow. If the interior temperature should be increased, the mixed air door is put into the position in which more air streams through the heater core. If the interior temperature should be decreased, the mixed air door is put into the position in which more air streams through the evaporator core.

Engine Coolant and A/C System Refrigerant

For information on engine coolant, coolant flow, A/C refrigerant, and the A/C refrigerant cycle, refer to *Heating and Air Conditioning System Description and Operation on page 6-3*.

Section 7

Power and Signal Distribution

Data Communications 7-3
  Description and Operation 7-3
    Data Link Communications Description and Operation 7-3

Electrical Component and Inline Harness Connector End Views 7-6
  Component Locator 7-6
    Electrical Center Identification Views 7-6
    Component Connector End Views 7-58
    Inline Harness Connector End Views 7-661

Power Outlets 7-809
  Schematic and Routing Diagrams 7-809
    Cigar Lighter/Power Outlet Schematics 7-810
  Description and Operation 7-821
    Mobile Device Wireless Charger Description and Operation 7-821
    Power Outlets Description and Operation 7-821

Wiring Systems and Power Management 7-824
  Schematic and Routing Diagrams 7-824
    Power Moding Schematics 7-825
    Ground Distribution Schematics 7-827
    Upfitter Provision Schematics 7-850
  Component Locator 7-853
    Master Electrical Component List 7-853
  Description and Operation 7-923
    Power Mode Description and Operation 7-923
    Retained Accessory Power Description and Operation 7-926

BLANK

Power and Signal Distribution

Data Communications

Description and Operation

Data Link Communications Description and Operation

Object-ID=5200561 Owner=Duong, Thuc LMD=09-Dec-2022 LMB=Duong, Thuc

Note: This is an overview of different serial data buses used by control modules to communicate with each others. Use Data Communication Schematics to find out which serial data buses are configured for a specific vehicle.

Data Link Communications Overview

There are many components in a vehicle that rely on information from other sources, transmit information to other sources, or both. Serial data communication networks provide a reliable, cost effective, way for various components of the vehicle to “talk” to one another and share information.

General Motors uses a number of different communication buses to insure the timely and efficient exchange of information between control modules. When compared to each other, some of these buses are different in nature as far as speed, signal characteristics, and behavior.

On the other hand, when other buses are compared to each other they have similar characteristics and simply operate in parallel. In this case they are used to group together components which have high interaction. Examples are the Controller Area Network (CAN), private CAN, and LIN buses. This allows them to communicate with each other on a bus with reduced message congestion insuring faster and the more timely exchange of information than if all vehicle control modules were on a single bus.

The majority of information that exists within a given network generally stays local; however some information will have to be shared on other networks. Control modules designated as Gateway’s perform the function of transferring information between the various buses. A Gateway module is connected to at least 2 buses and will interact with each network according to its message strategy and transmission models.

CAN provides the capability for a receiving control module to monitor message transmissions from other control modules in order to determine if messages of interest are not being received. The primary purpose is to allow reasonable default values to be substituted for the information no longer being received. Additionally, a control module may set a Diagnostic Trouble Code (DTC) to indicate that the control module it is expecting information from is no longer communicating.

K9 Body Control Module (BCM)

The body control system consists of the K9 Body Control Module, communications, and various input and outputs. Some inputs, outputs and messages require other control modules to interact with the K9 Body Control Module. The K9 Body Control Module also has discrete input and output terminals to control the vehicle's body functions. The K9 Body Control Module is wired to CAN bus and multiple Local Interconnect Network (LIN) buses and acts as a gateway between them.

The various K9 Body Control Module input and output circuits are illustrated in the corresponding functional areas on the K9 Body Control Module electrical schematics. Refer to the Body Control System Schematics for more detailed information.

K56 Serial Data Gateway Module

The K56 Serial Data Gateway Module gates messages between the CAN networks described in the Controller Area Network (CAN) Bus Description section below. The K56 Serial Data Gateway Module needs to know what CAN control modules are present on a given vehicle in order to enable/disable loss of communication DTCs and to know what CAN control modules to track for their communication status. The K56 Serial Data Gateway Module has the ability to learn the diagnostic addresses list of CAN control modules to identify what CAN control modules are equipped on the vehicle and what CAN buses they are on. If the K56 Serial Data Gateway Module is replaced, this learn/verification process will have to be done again through K56 Serial Data Gateway Module programming and setup procedure in SPS. This learn process will not cause any previously learned contents to be forgotten/overwritten. If the learn process is not done on a new K56 Serial Data Gateway Module, DTC U1977 will be set until the learn procedure is executed. If the learn is invalid due to control module internal malfunction or a K56 Serial Data Gateway Module swap, DTC U3000 42 or DTC U3002 56 will be set. If any of these DTCs sets, the K56 Serial Data Gateway Module will enable loss of communication for all CAN control modules. This will result in loss of communication DTCs being set against CAN control modules that are not equipped on the vehicle.

A fault can be localized by monitoring the normal mode messages on a CAN bus. The K56 Serial Data Gateway Module will monitor one signal per CAN control module per CAN bus to determine control module status. When a signal times out, a loss of communication event will be started.

Controller Area Network (CAN) Bus Description

The CAN buses are used where data needs to be exchanged at a high enough rate to minimize the delay between the occurrence of a change in sensor value and the reception of this information by a control device using the information to adjust vehicle system performance.

Each CAN serial data network consists of two twisted wires. One signal circuit is identified as CAN-High and the other signal circuit is identified as CAN-Low. At each end of the data bus there is a 120 Ω termination resistor between the CAN-High and CAN-Low circuits. Most CAN control modules have an internal resistance of 4.950K Ω. There may be one or two CAN control modules that have a higher internal resistance like the K60 Column Lock Module which has an internal resistance of 77.4K Ω. The internal resistance of CAN control modules causes lower terminating resistor reading when splitting the CAN network to check for faults. The more CAN control modules on the network the lower the terminating resistor will read.

The data to be transmitted over a CAN bus is represented by the voltage difference between the CAN-High signal voltage and the CAN-Low signal voltage. Data symbols (1’s and 0’s) are transmitted sequentially at the following rate:

- CAN 1 (circuits 4986 & 4987) = 500 Kbit/s
- CAN 2 (circuits 4978 & 4979) = 2 Mbit/s
- CAN 3 (circuits 4976 & 4977) = 500 Kbit/s
- CAN 4 (circuits 4100 & 4101) = 500 Kbit/s
- CAN 5 (circuits 4984 & 4985) = 500 Kbit/s
- CAN 6 (circuits 4980 & 4981) = 5 Mbit/s
- CAN 7 (circuits 4982 & 4983) = 5 Mbit/s
- CAN 8 (circuits 4104 & 4105) = 2 Mbit/s
- CAN 9 (circuits 4102 & 4103) = 2 Mbit/s

When the two wire bus is at rest the CAN-High and CAN-Low signal circuits are not being driven and this represents a logic “1”. In this state both signal circuits are at the same voltage of 2.5 V. The differential voltage is approximately 0 V.

When a logic “0” is to be transmitted, the CAN-High signal circuit is driven higher to about 3.5 V and the CAN-Low circuit is driven lower to about 1.5 V. The differential voltage becomes approximately 2.0 (+/- 0.5) V.

The CAN 1, CAN 2, CAN 3, CAN 4, CAN 5, CAN 8, and CAN 9 buses are used to communicate between the K56 Serial Data Gateway Module and other CAN control modules.

The CAN 8, and CAN 9 buses are reserved for the following systems:

- The CAN 8 bus is reserved for most control modules and sensors related to active safety system, if applicable.
- The CAN 9 bus is reserved for most control modules and sensors related to Hybrid/EV system, if applicable.

The following CAN buses are between the X84 Data Link Connector and the K56 Serial Data Gateway Module:

- The CAN 6 bus is used for CAN diagnostics and programming.
- The CAN 7 bus is used for programming by assembly plant only.
- The Private Presentation CAN 1 bus (circuits 2577 & 2578) is used by Engineering to observe data communications on CAN buses not directly accessible at the X84 Data Link Connector. It requires special security access and will not be used in a service environment.
- The Private Presentation CAN 2 bus (circuits 2579 & 2580) is used by Engineering to observe data communications on CAN buses not directly accessible at the X84 Data Link Connector. It requires special security access and will not be used in a service environment.

Private Powertrain CAN Bus Description

The Private Powertrain CAN bus (circuits 4054 & 4055) is reserved for Powertrain components. It has a transmission rate of 500 Kbit/s. Sometimes communication is required between the Private Powertrain CAN bus and another CAN bus. This is accomplished by using the K20 Engine Control Module (for gas vehicles) or K16 Battery Energy Control Module (for electric vehicles) as the Gateway module. Since the Private Powertrain CAN bus and other CAN buses operate in the same manner, the diagnostics for each are similar.

Local Interconnect Network (LIN) Bus Description

The LIN Bus consists of a single wire with a transmission rate of 10.417 Kbit/s. This bus is used to exchange information between a master control module and other smart devices which provide supporting functionality. This type of configuration does not require the capacity or speed of a CAN bus and is thus relatively simpler.

The data symbols (1’s and 0’s) to be transmitted are represented by different voltage levels on the communication bus. When the LIN Bus is at rest and is not being driven, the signal is in a high voltage state of approximately Vbatt. This represents a logic “1”. When a logic “0” is to be transmitted, the signal voltage is driven low to about ground (0.0 V).

Ethernet Bus Description

Ethernet is a data communication technology that uses a single twisted copper pair of wires at speeds of 100 Mbit/s and 1000 Mbit/s. The Ethernet system uses point-to-point communication that is connected via an Ethernet switch [Module <–> Switch <–> Module]. The Ethernet bus does not use terminating resistors.

The K56 Serial Data Gateway Module and the A11 Radio have an Ethernet switch that connects to other Ethernet modules. The K56 Serial Data Gateway Module and the A11 Radio communicate with other devices and systems in the vehicle via CAN and LIN buses. Diagnostic Trouble Codes will be read on CAN to diagnose Ethernet, LIN and system faults.

Note: Ethernet harness failures should only be repaired using an appropriate kit to perform de-pin/re-pin overlays or in cases where the wiring harness repair kits are not available, the entire harness should be replaced. No crimps or splicing should be performed on the Ethernet wiring harness.

Ethernet 1

Ethernet bus 1 consists of 2 twisted pair of wires [1 pair for Ethernet bus 1R (circuits 4972 & 4973) and 1 pair for Ethernet bus 1T (circuits 4974 & 4975)]. It is connected between X84 Data Link Connector (DLC) and K56 Serial Data Gateway Module. This bus is used for diagnostics and service programming of control modules using Ethernet instead of CAN. The K56 Serial Data Gateway Module will convert Ethernet serial data to CAN as necessary, and vice versa. There is an Ethernet enable circuit (circuit 7207) which can be used to wake up the K56 Serial Data Gateway Module for Ethernet diagnostic and programming.

Ethernet 2

Ethernet bus 2 (circuits 4757 & 4758) is for connection between the A11 Radio and the K56 Serial Data Gateway Module.

Ethernet 3

Ethernet bus 3 (circuits 7208 & 7209) is for connection between the K56 Serial Data Gateway Module and K179 Automated Driving Mapping Module.

Ethernet 4

Ethernet bus 4 (circuits 7210 & 7211) is for connection between the following control modules:

- K56 Serial Data Gateway Module and K73 Communication Interface Module for vehicles equipped with IOR radio.
- A11 Radio and K73 Communication Interface Module for vehicles equipped with other radios.

Ethernet 5

Ethernet bus 5 (circuits 7212 & 7213) is for connection between the A11 Radio and P22F Video Display - Right Front Seat Back.

Ethernet 6

Ethernet bus 6 (circuits 7214 & 7215) is for connection between the A11 Radio and T3 Audio Amplifier.

Ethernet 7

Ethernet bus 7 (circuits 7216 & 7217) is for connection between the K56 Serial Data Gateway Module and P16 Instrument Panel Cluster Control Module or K190 Off-Board Charger Control Module.

Ethernet 11

Ethernet bus 11 (circuits 7224 & 7225) is for connection between the K124 Image Processing Module and K179 Automated Driving Mapping Module.

Ethernet 14

Ethernet bus 14 (circuits 7230 & 7231) is for connection between the A11 Radio and P29 Head-Up Display.

Ethernet 15

Ethernet bus 15 (circuits 7232 & 7233) is for connection between the K56 Serial Data Gateway Module, K161 Vehicle Performance Data Recorder, and P22F Video Display - Passenger Seat Back.

X84 Data Link Connector (DLC)

The X84 Data Link Connector is a standardized 16-cavity connector. Connector design and location is dictated by an industry wide standard, and is required to provide the following:

- Terminal 1: CAN Bus 7 Serial Data [+]
- Terminal 2: Private Presentation CAN Bus 1 Serial Data [+]
- Terminal 3: Ethernet Bus 1R [+]
- Terminal 4: Scan tool power ground
- Terminal 5: Common signal ground
- Terminal 6: CAN Bus 6 Serial Data [+]
- Terminal 7: Private Presentation CAN Bus 2 Serial Data [+]
- Terminal 8: Ethernet Bus 1 Enable Signal
- Terminal 9: CAN Bus 7 Serial Data [-]
- Terminal 10: Private Presentation CAN Bus 1 Serial Data [-]
- Terminal 11: Ethernet Bus 1R [-]
- Terminal 12: Ethernet Bus 1T [+]
- Terminal 13: Ethernet Bus 1T [-]
- Terminal 14: CAN Bus 6 Serial Data [-]
- Terminal 15: Private Presentation CAN Bus 2 Serial Data [-]
- Terminal 16: Scan tool power, B+

Serial Data Reference

The scan tool communicates over the various buses on the vehicle. When a scan tool is installed on a vehicle, the scan tool will try to communicate with every control module that could be optioned into the vehicle. If an option is not installed on the vehicle, the scan tool will display No Communication for that optional control module. In order to avert misdiagnoses of No Communication with a specific control module, refer to Data Link References for a list of control modules and the buses they communicate with. Use schematics and specific vehicle build RPO codes to determine optional control modules.

Power and Signal Distribution

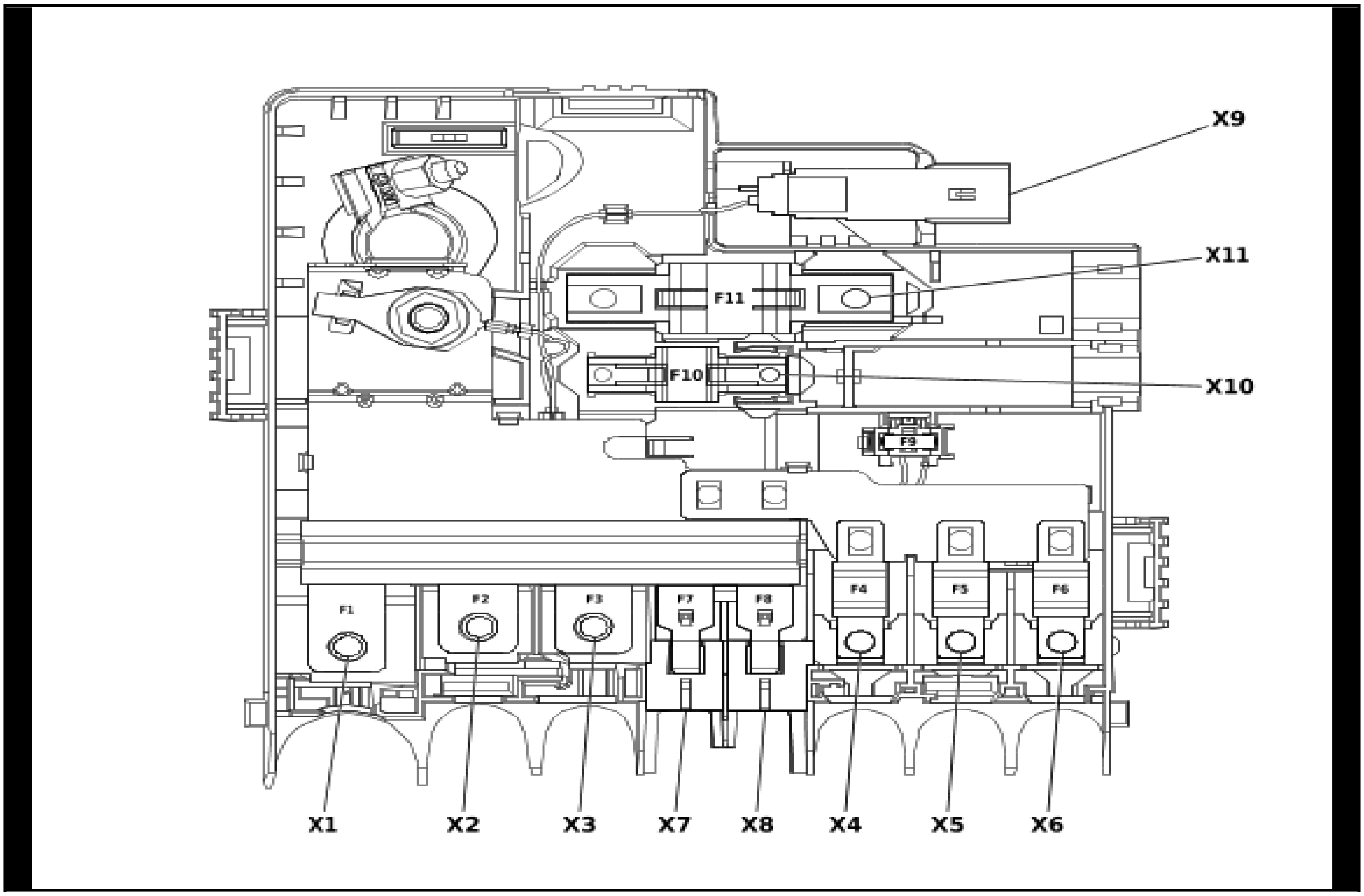
Electrical Component and Inline Harness Connector End Views

Component Locator

Electrical Center Identification Views

Object-ID=6212883 Owner=Owner, Schematics LMD=10-Feb-2023 LMB=Kalb, William

X50B Battery Distribution Engine Compartment Fuse Block Top View



5070128

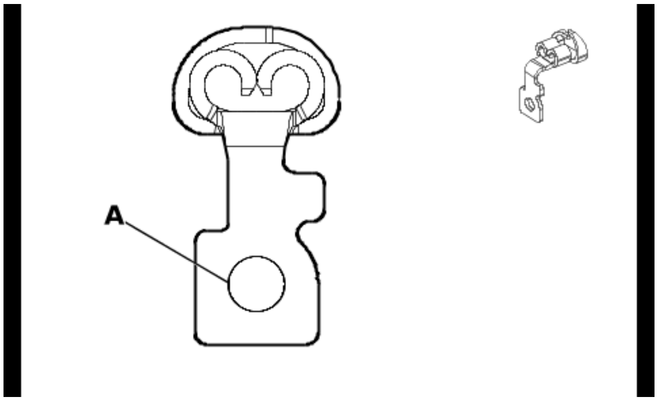
Usage Table

No.	Device Label Name	Device Assigned Name	Rating	Description
Fuses				
F1	—	F1BA	250A	• G13 Generator • X50A Engine Wiring Harness Junction Block
F2	—	F2BA	175A (L8T) 400A (L5P)	• X50A Engine Wiring Harness Junction Block (L8T) • X50EA Battery Distribution Fuse Block - Auxiliary (L5P)
F3	—	F3BA	400A	• M64 Starter Motor
F4	—	F4BA	60A	• E40 Air Heater (C3A)
F5	—	F5BA	100A (K4B) 60A (L5P)	• X50EA Battery Distribution Fuse Block - Auxiliary (K4B) • K20 Engine Control Module (L5P)

Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
F6	—	F6BA	60A	• K20 Engine Control Module (L5P)
F7	—	F7BA	60A	• X51R Instrument Panel Wiring Harness Junction Block - Right
F8	—	F8BA	60A	• X51R Instrument Panel Wiring Harness Junction Block - Right
F9	—	F9BA	5A	• B110 Battery Sensor Module
F10	—	F10BA	60A	• X51AX Instrument Panel Wiring Harness Junction Block - Right (9L7)

X50B Battery Distribution Engine Compartment Fuse Block X1 FIGURESIO=6218923 Owner=Kalb, William LMD=26-Jan-2023



5911326

Connector Part Information

Harness Type: Generator Cable
OEM Connector: 84386516
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

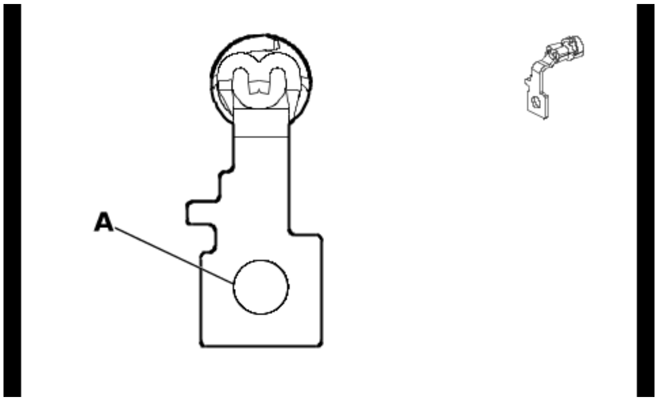
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	35	RD / YE	2	Battery Positive Voltage	I	—

X50B Battery Distribution Engine Compartment Fuse Block X2

FIGURESIO=6218927 Owner=Kalb, William LMD=26-Jan-2023



5664311

Connector Part Information

Harness Type: Battery Positive Cable
OEM Connector: 84386514
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

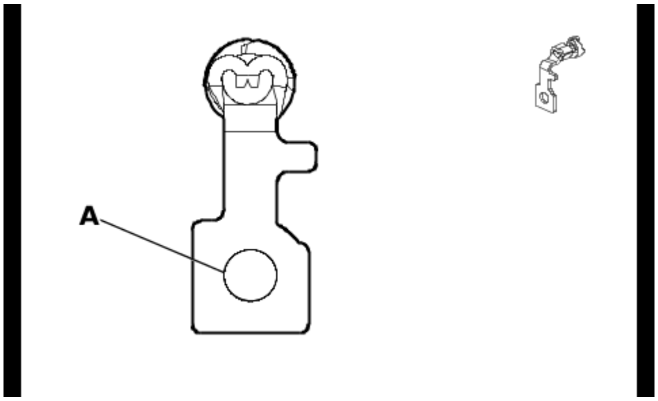
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	25	RD / GN	242	Battery Positive Voltage	I	—

X50B Battery Distribution Engine Compartment Fuse Block X3

FIGURESIO=6218931 Owner=Kalb, William LMD=26-Jan-2023



5881244

Connector Part Information

Harness Type: Starter Solenoid Cable
OEM Connector: 84386515
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

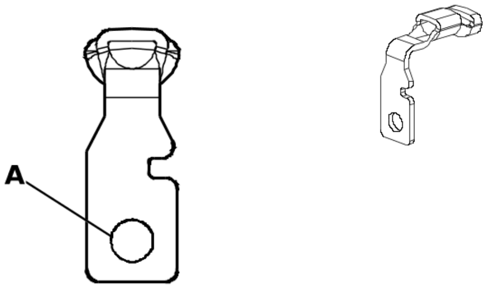
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	35	RD / YE	2	Battery Positive Voltage	I	—

X50B Battery Distribution Engine Compartment Fuse Block X4

FIGURESIO=6217874 Owner=Owner, Schematics LMD=26-Jan-2023



5194789

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35085117
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

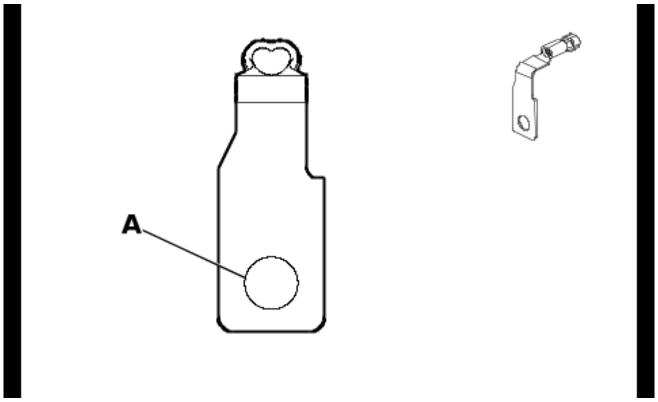
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X4

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	10	RD / GY	642	Battery Positive Voltage	I	—

X50B Battery Distribution Engine Compartment Fuse Block X5 (L5P)

FIGURESIO=6217875 Owner=Owner, Schematics LMD=26-Jan-2023



5373306

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35169508
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

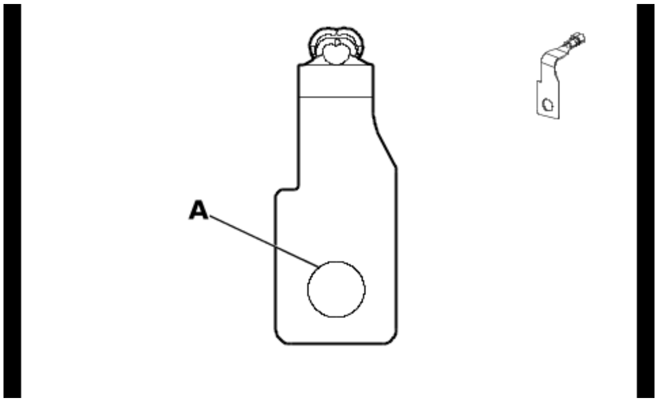
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X5 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	6	BN / BU	104	Glow Plug Control	I	—

X50B Battery Distribution Engine Compartment Fuse Block X6 (L5P)

FIGURESIO=6217876 Owner=Owner, Schematics LMD=26-Jan-2023



6167349

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35510990
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

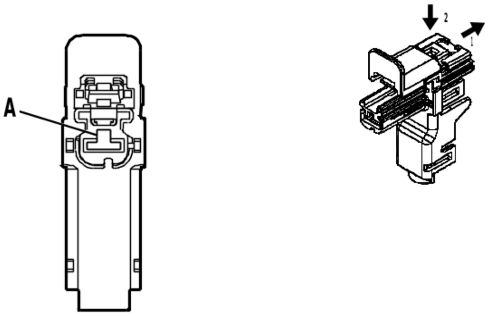
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X6 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	6	BN / BU	104	Glow Plug Control	I	—

X50B Battery Distribution Engine Compartment Fuse Block X7

FIGURESIO=6217877 Owner=Owner, Schematics LMD=26-Jan-2023



4994171

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33297579
Service Connector: Service by Harness - See Part Catalog
Description: 1-Way F 6.3 Series(BU)

Terminal Part Information

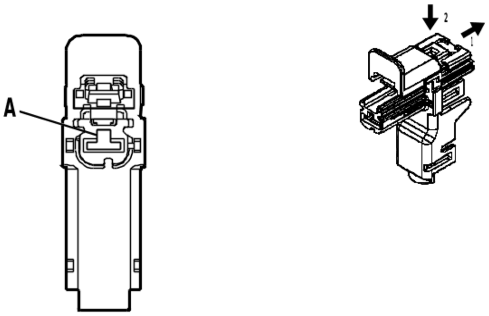
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X7

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	5	RD / YE	1442	Battery Positive Voltage	I	—

X50B Battery Distribution Engine Compartment Fuse Block X8

FIGURESIO=6217878 Owner=Owner, Schematics LMD=26-Jan-2023



4994183

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33297578
Service Connector: Service by Harness - See Part Catalog
Description: 1-Way F 6.3 Series(BK)

Terminal Part Information

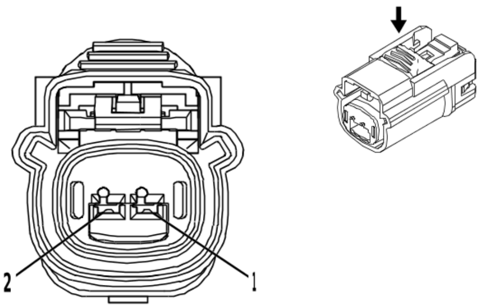
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X8

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	10	RD / WH	342	Battery Positive Voltage	I	—

X50B Battery Distribution Engine Compartment Fuse Block X9

FIGURESIO=6217879 Owner=Owner, Schematics LMD=26-Jan-2023



4332222

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 33314786

Service Connector: 19368124

Description: 2-Way F 1.5 OCS Series, Sealed(BK)

Terminal Part Information

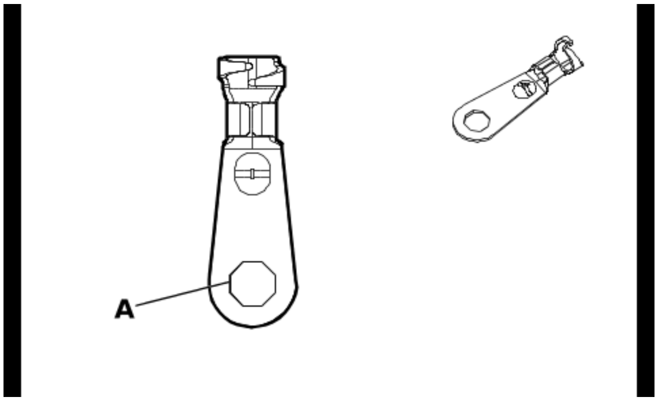
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X9

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD / YE	2340	Battery Positive Voltage	I	—
2	—	—	—	Not Occupied	—	—

X50B Battery Distribution Engine Compartment Fuse Block X10

FIGURESIO=6217880 Owner=Owner, Schematics LMD=26-Jan-2023



5920578

Connector Part Information

Harness Type: Auxiliary Fuse Block Wiring Harness
OEM Connector: 13624367
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50B Battery Distribution Engine Compartment Fuse Block X10

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	10	RD / VT	542	Battery Positive Voltage	I	—
A	—	—	—	Not Occupied	—	—

X50EA Battery Distribution Fuse Block - Auxiliary X2 (L5P)

—

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 84668601
Service Connector: Service by Harness - See Part Catalog
Description: 1-Way

Terminal Part Information

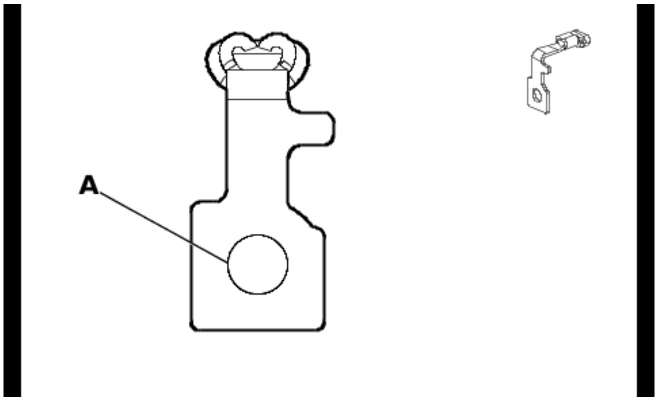
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50EA Battery Distribution Fuse Block - Auxiliary X2 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	—	RD / YE	2	Battery Positive Voltage	I	—
	—	RD / GN	242	Battery Positive Voltage	I	—

X50EA Battery Distribution Fuse Block - Auxiliary X3 (K4B)

FIGURESIO=6258133 Owner=Owner, Schematics
LMD=27-Jan-2023



5873864

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 84537527
Service Connector: Service by Harness - See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

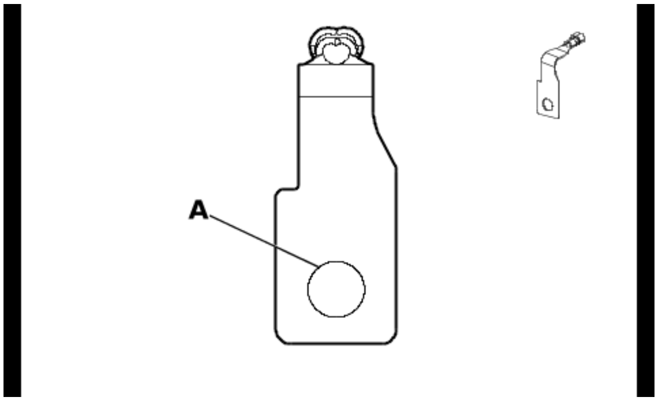
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50EA Battery Distribution Fuse Block - Auxiliary X3 (K4B)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	—	RD / GN	742	Battery Positive Voltage	I	K4B
	—	RD / YE	2	Battery Positive Voltage	I	L5P+ KHF

X50EA Battery Distribution Fuse Block - Auxiliary X6 (K4B)

FIGURESIO=6258134 Owner=Owner, Schematics
LMD=26-Jan-2023



6167349

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 84392525
Service Connector: Service by Harness - See Part Catalog
Description: 1-Way Ring Terminal

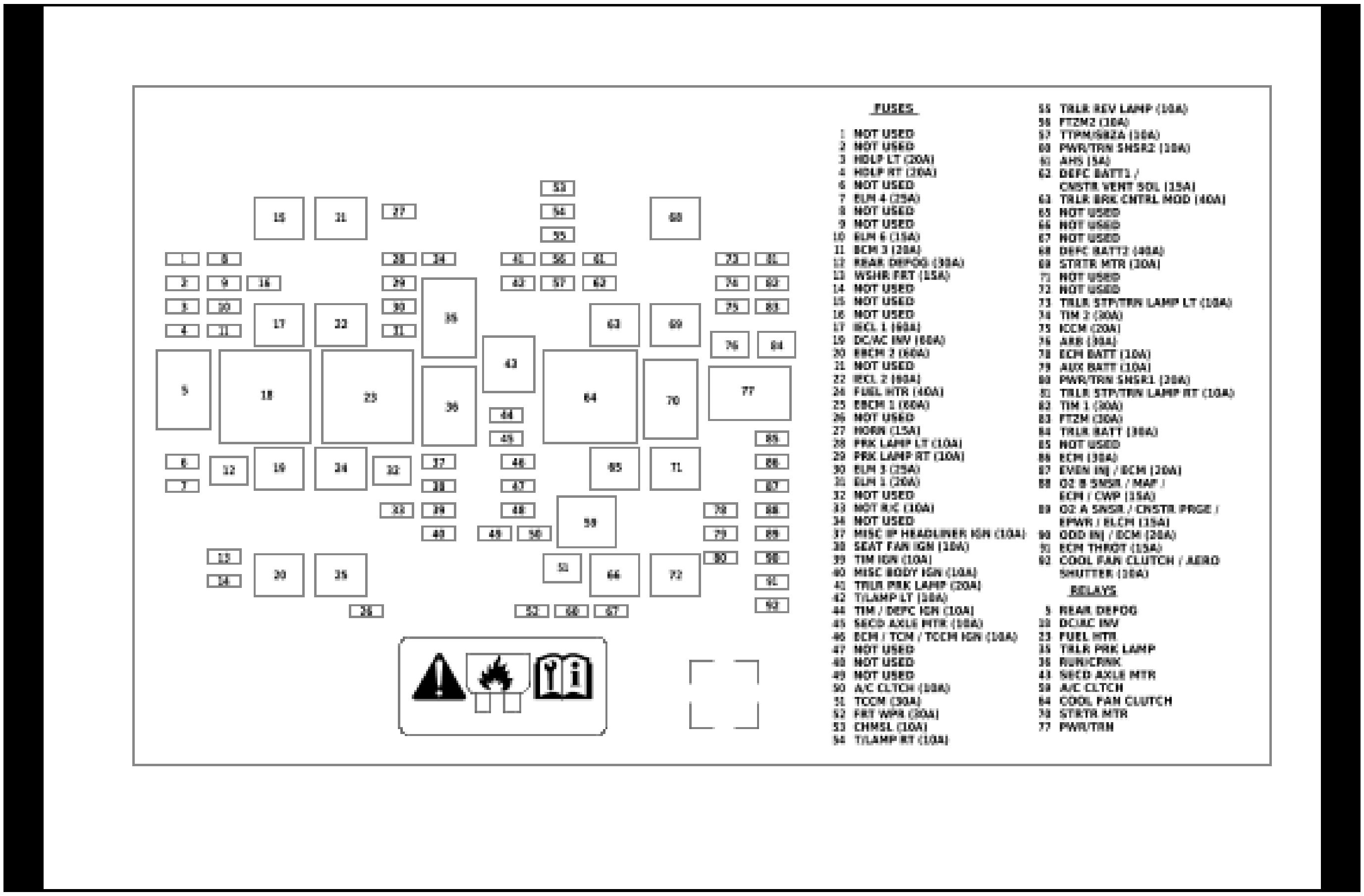
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50EA Battery Distribution Fuse Block - Auxiliary X6 (K4B)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	—	RD / VT	842	Battery Positive Voltage	I	—

X50A Engine Wiring Harness Junction Block Label


53
15
31
27
54
68
55
1
8
28
34
41
56
61
73
81
2
9
16
29
42
57
62
74
82
3
10
30
35
75
83
4
11
17
22
31
63
69
76
84
5
18
23
36
43
64
70
77
44
45
85
6
12
19
24
32
37
46
65
71
86
7
38
47
87
33
39
48
59
78
88
40
49
50
79
89
13
20
25
51
66
72
80
90
14
91
26
52
60
67
92

FUSES

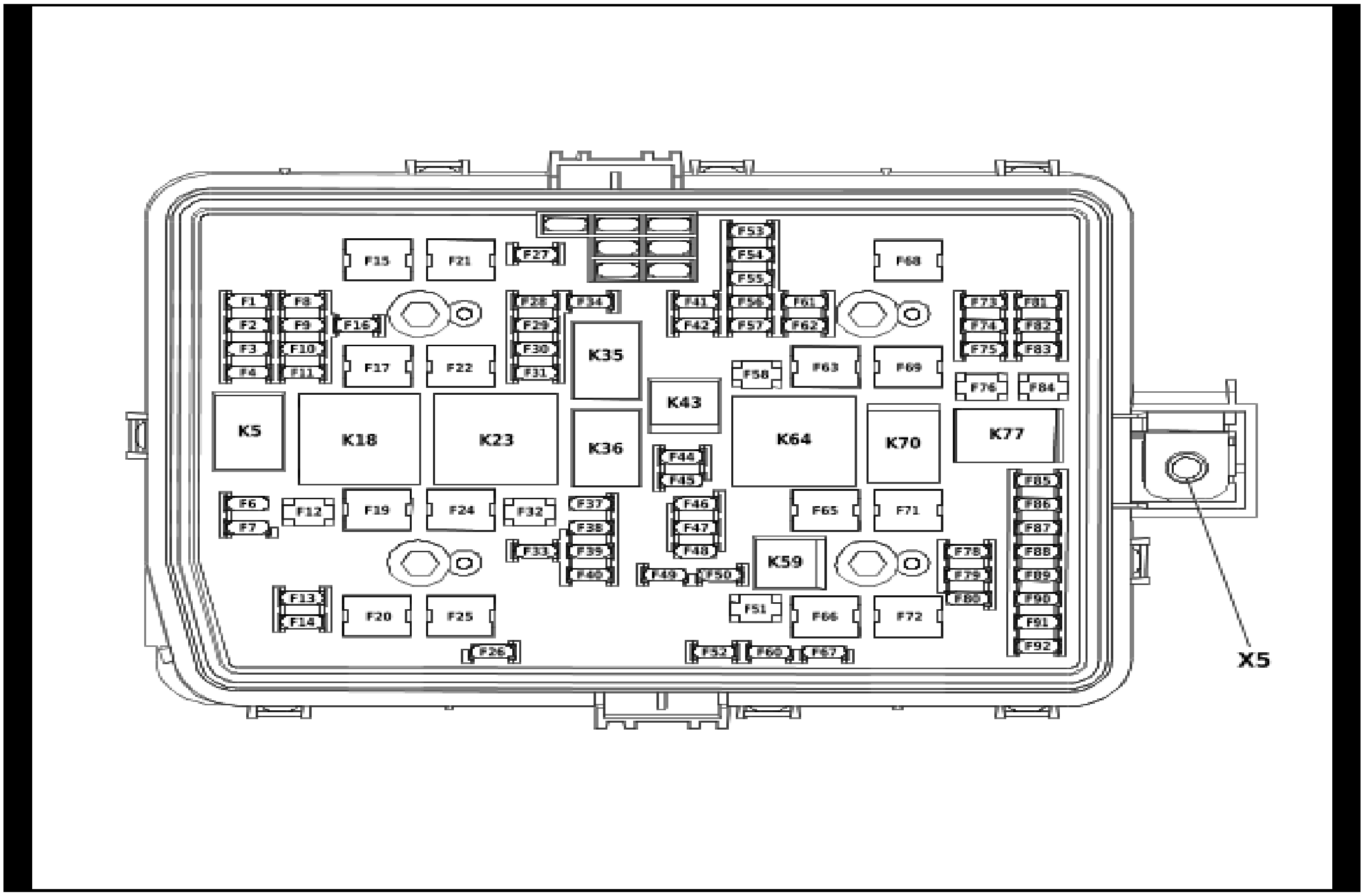
1 NOT USED
2 NOT USED
3 HDLP LT (20A)
4 HDLP RT (20A)
6 NOT USED
7 BLM 4 (25A)
8 NOT USED
9 NOT USED
10 BLM 6 (15A)
11 BCM 3 (20A)
12 REAR DEFOG (30A)
13 WSHR FRT (15A)
14 NOT USED
15 NOT USED
16 NOT USED
17 IECL 1 (60A)
19 DC/AC INV (60A)
20 EBCM 2 (60A)
21 NOT USED
22 IECL 2 (60A)
24 FUEL HTR (40A)
25 EBCM 1 (60A)
26 NOT USED
27 HORN (15A)
28 PRK LAMP LT (10A)
29 PRK LAMP RT (10A)
30 BLM 3 (25A)
31 BLM 1 (20A)
32 NOT USED
33 MOT R/C (10A)
34 NOT USED
37 MISC IP HEADLINER IGN (10A)
38 SEAT FAN IGN (10A)
39 TIM IGN (10A)
40 MISC BODY IGN (10A)
41 TRLR PRK LAMP (20A)
42 T/LAMP LT (10A)
44 TIM / DEFC IGN (10A)
45 SECD AXLE MTR (10A)
46 ECM / TCM / TCCM IGN (10A)
47 NOT USED
48 NOT USED
49 NOT USED
50 A/C CLTCH (10A)
51 TCCM (30A)
52 FRT WPR (30A)
53 CHMSL (10A)
54 T/LAMP RT (10A)
55 TRLR REV LAMP (10A)
56 FT2M2 (10A)
57 TTPM/SB2A (10A)
60 PWR/TRN SNSR2 (10A)
61 AHS (5A)
62 DEFC BATT1 / CNSTR VENT SOL (15A)
63 TRLR BRK CNTRL MOD (40A)
65 NOT USED
66 NOT USED
67 NOT USED
68 DEFC BATT2 (40A)
69 STRTR MTR (30A)
71 NOT USED
72 NOT USED
73 TRLR STP/TRN LAMP LT (10A)
74 TIM 2 (30A)
75 ICCM (20A)
76 ARB (30A)
78 ECM BATT (10A)
79 AUX BATT (10A)
80 PWR/TRN SNSR1 (20A)
81 TRLR STP/TRN LAMP RT (10A)
82 TIM 1 (30A)
83 FT2M (30A)
84 TRLR BATT (30A)
85 NOT USED
86 ECM (30A)
87 EVEN INJ / ECM (20A)
88 O2 B SNSR / MAP / ECM / CWP (15A)
89 O2 A SNSR / CNSTR PRGE / EPWR / ELCM (15A)
90 ODD INJ / ECM (20A)
91 ECM THROT (15A)
92 COOL FAN CLUTCH / AERO SHUTTER (10A)

RELAYS

5 REAR DEFOG
18 DC/AC INV
23 FUEL HTR
35 TRLR PRK LAMP
36 RUN/CRNK
43 SECD AXLE MTR
59 A/C CLTCH
64 COOL FAN CLUTCH
70 STRTR MTR
77 PWR/TRN

6239521

X50A Engine Wiring Harness Junction Block Top View


F53
F54
F55
F15
F21
F27
F68
F1
F8
F2
F9
F16
F3
F10
F4
F11
F28
F34
F29
F30
F31
F41
F42
F56
F57
F61
F62
F73
F81
F74
F82
F75
F83
F17
F22
K35
F58
F63
F69
F76
F84
K43
K5
K18
K23
K36
K64
K70
K77
F44
F45
F85
F86
F87
F88
F89
F90
F91
F92
F6
F7
F12
F19
F24
F32
F37
F38
F39
F40
F33
F46
F47
F48
F65
F71
K59
F78
F79
F80
F49
F50
F51
F13
F14
F20
F25
F66
F72
F26
F52
F60
F67
X5

6013389

Usage Table

No.	Device Label Name	Device Assigned Name	Rating	Description
Fuses				
F1	NOT USED	F1UA	—	• Not Used
F2	NOT USED	F2UA	—	• Not Used
F3	HDLP LT	F3UA	20A	• E13LA Front Headlamp - Left
F4	HDLP RT	F4UA	20A	• E13RA Front Headlamp - Right
F6	ELM 7	F6UA	25A	• Not Used
F7	ELM 4	F7UA	25A	• K219 Lighting Control Module
F8	NOT USED	F8UA	—	• Not Used
F9	ELM 5	F9UA	25A	• Not Used
F10	ELM 6	F10UA	15A	• K219 Lighting Control Module
F11	BCM 2	F11UA	20A	• K9 Body Control Module
F12	REAR DEFOG	F12UA	30A	• E18 Rear Window Defogger Grid
F13	WSHR FRT	F13UA	15A	• G24 Windshield Washer Pump
F14	NOT USED	F14UA	—	• Not Used
F15	NOT USED	F15UA	—	• Not Used
F16	NOT USED	F16UA	—	• Not Used
F17	IECL 1	F17UA	60A	• X53AF Body Wiring Harness Junction Block
F19	DC/AC INV	F19UA	60A	• T1 DC/AC Converter Control Module (KI4/KI5)

Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
F20	IECR2	F20UA	60A	• K160 Brake System Control Module
F21	NOT USED	F21UA	—	• Not Used
F22	IECL 2	F22UA	60A	• X53AF Body Wiring Harness Junction Block
F24	FUEL HTR	F24UA	40A	• R29 Fuel Filter (L5P)
F25	EBCM	F25UA	60A	• K160 Brake System Control Module
F26	NOT USED	F26UA	—	• Not Used
F27	HORN	F27UA	15A	• P13 Horn
F28	PARK LAMP LT	F28UA	10A	• A9A Outside Rearview Mirror - Driver (DBG/ DWI/DZC) • A9B Outside Rearview Mirror - Passenger (DBG/ DWI/DZC) • E3A Front Clearance Lamp - Roof Left Outer • E3FA Front Identification Lamp • E3E Front Clearance Lamp - Roof Right Outer • E3LF Rear Clearance Lamp - Fender Left Front • E3LR Rear Clearance Lamp - Fender Left Rear • E3RF Rear Clearance Lamp - Fender Right Front • E3RR Rear Clearance Lamp - Fender Right Rear • E3RA Rear Identification Lamp
F29	PARK LAMP RT	F29UA	10A	• Not Used
F30	ELM 3	F30UA	25A	• K219 Lighting Control Module
F31	ELM 1	F31UA	20A	• K219 Lighting Control Module
F32	NOT USED	F32UA	—	• Not Used
F33	NOT R/C	F33UA	10A	• K60 Column Lock Module
F34	RADARS	F34UA	10A	• Not Used
F37	MISC IP HEADLINER IGN	F37UA	10A	• A10 Inside Rearview Mirror • E40 Air Heater (C32) • P16 Instrument Panel Cluster Control Module • P43 Forward Collision Alert Display ((UEU/ UHX)-UV6) • B87CA Auxiliary Rearview Camera - Cargo Area (UVO)
F38	SEAT FAN IGN	F38UA	10A	• M73A Front Seat Back Ventilation Blower - Driver (KQV) • M73B Front Seat Back Ventilation Blower - Passenger (KQV) • M73D Front Seat Cushion Ventilation Blower - Driver (KQV) • M73P Front Seat Cushion Ventilation Blower - Passenger (KQV)
F39	TIM 2	F39UA	10A	• K68 Trailer Lamp Control Module (UET)
F40	MISC BODY IGN	F40UA	10A	• K36 Restraints Control Module • K160 Brake System Control Module • K219 Lighting Control Module • T1 DC/AC Converter Control Module (KI4/KI5)
F41	TRLR PRK LAMP / GRT GRILLE LAMP	F41UA	20A	• X88B Tow Vehicle Electrical Receptacle (Z82-UET)
F42	NOT USED	F42UA	—	• Not Used

Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
F44	TIM / DEFC / ICCM IGN	F44UA	10A	• K38 Chassis Control Module (G94) • K111 Fuel Pump Power Control Module • K115 Reductant Control Module (L5P)
F45	SECD AXLE MTR	F45UA	10A	• Not Used
F46	ECM / TCM / TCCM IGN	F46UA	15A	• K20 Engine Control Module • K71 Transmission Control Module • K69 Transfer Case Control Module
F47	NOT USED	F47UA	—	• Not Used
F48	NOT USED	F48UA	—	• Not Used
F49	TRANS AUX OIL PUMP	F49UA	15A	• Not Used
F50	A/C CLTCH	F50UA	10A	• Q2 Air Conditioning Clutch
F51	TCCM	F51UA	30A	• K69 Transfer Case Control Module (NP0/NQH)
F52	FRT WPR	F52UA	30A	• M75 Windshield Wiper Motor
F53	CHMSL	F53UA	10A	• E6A High Mount Stop and Cargo Lamp (Regular Cab)
F54	TAIL LAMP	F54UA	10A	• E42L Rear Body Structure Stop Lamp - Left
F55	TRLR REV LAMP	F55UA	10A	• X88B Tow Vehicle Electrical Receptacle (Z82-UET)
F56	SADS	F56UA	10A	• Not Used
F57	TTPM/SBZA	F57UA	10A	• B218L Side Obstacle Detection Control Module - Left (UKC/UKV) • B218R Side Obstacle Detection Control Module - Right (UKC/UKV) • K214 Trailer Tire Pressure Indicator Module (UET)
F58	STRTR MTR	F58UA	30A	• Not Used
F60	PWR/TRN SNSR2	F60UA	10A	• B195A Nitrogen Oxides Sensor 1 (L5P) • K44 Power Takeoff Control Module (PTO)
F61	NOT USED	F61UA	5A	• K43 Power Steering Control Module (NV8)
F62	DEFC BATT1 / ICCM / CNSTR VENT SOL	F62UA	15A	• K115 Reductant Control Module (L5P) • Q13 Evaporative Emission Canister Vent Solenoid Valve (L8T)
F63	TRLR BRK CNTRL MOD	F63UA	40A	• K67 Trailer Brake Control Module (JL1) • W24 Blunt Cut - Trailer Brakes Provision (JL1+Z82)
F65	NOT USED	F65UA	—	• Not Used
F66	COOL FAN MTR LT	F66UA	50A	• Not Used
F67	NOT USED	F67UA	—	• Not Used
F68	DEFC BATT2	F68UA	40A	• K115 Reductant Control Module (L5P)
F69	STRTR PINION	F69UA	40A	• M64 Starter Motor
F71	COOL FAN MTR LWR	F71UA	50A	• Not Used
F72	COOL FAN MTR RT	F72UA	50A	• Not Used
F73	TRLR STP/TRN LAMP LT	F73UA	10A	• X88B Tow Vehicle Electrical Receptacle (Z82-UET)
F74	TIM 2	F74UA	30A	• K68 Trailer Lamp Control Module (UET)
F75	ICCM	F75UA	20A	• K38 Chassis Control Module (G94)
F76	ARB	F76UA	30A	• K4 Running Board Control Module (BRS)
F78	ECM BATT	F78UA	15A	• K20 Engine Control Module

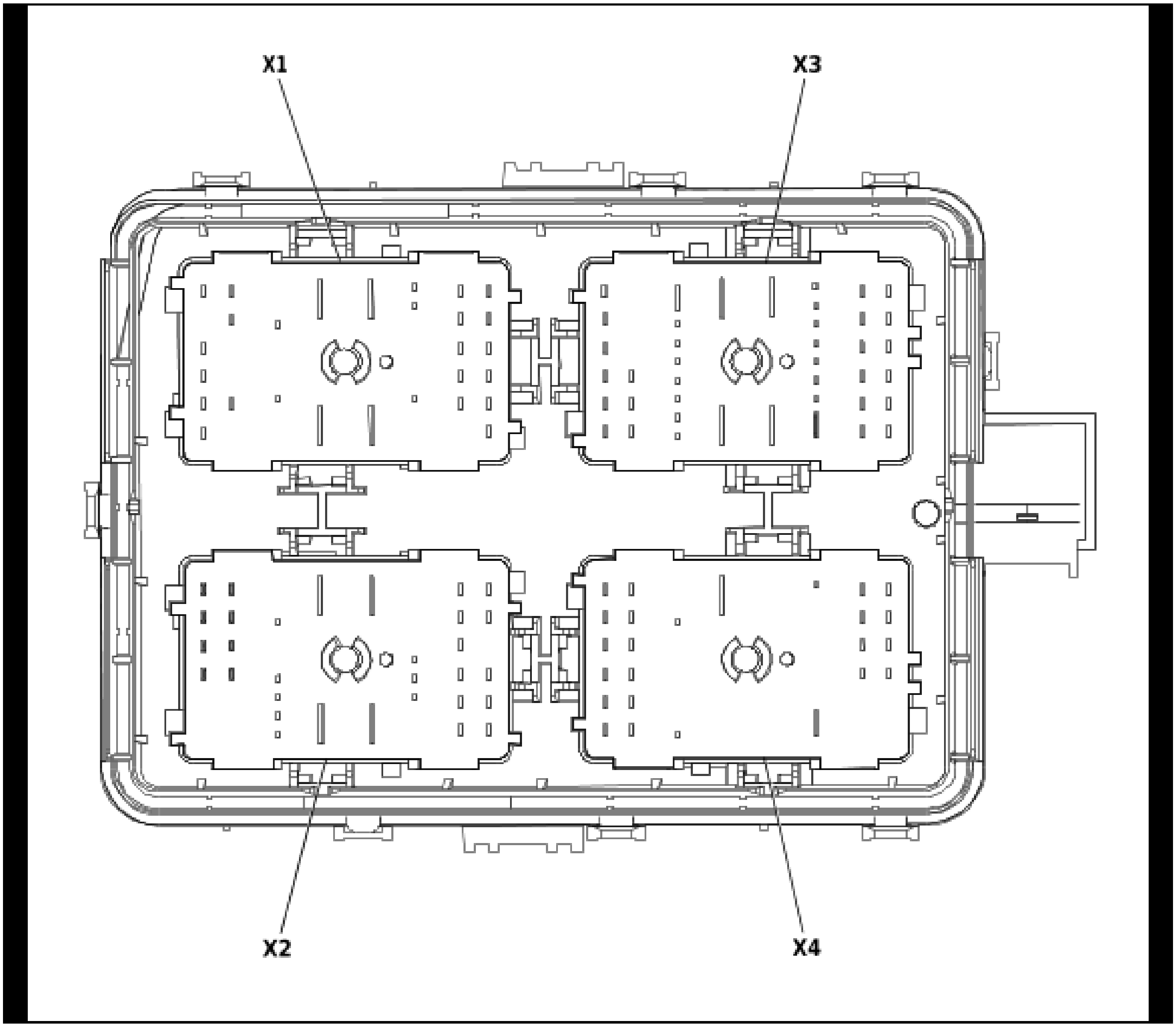
Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
F79	AUX BATT	F79UA	10A	• X50EA Battery Distribution Fuse Block - Auxiliary
F80	PWR/TRN SNSR1	F80UA	20A	• B195B Nitrogen Oxides Sensor 2 (L5P) • M103 Turbocharger Vane Position Actuator (L5P) • B136 Exhaust Particulate Matter Sensor (L5P) • K111 Fuel Pump Power Control Module (L5P) • R29 Fuel Filter (L5P)
F81	TRLR STP/TRN LAMP RT	F81UA	10A	• X88B Tow Vehicle Electrical Receptacle (Z82-UET)
F82	TIM 1	F82UA	30A	• K68 Trailer Lamp Control Module (UET)
F83	FTZM	F83UA	30A	• K111 Fuel Pump Power Control Module
F84	TRLR BATT	F84UA	30A	• X88B Tow Vehicle Electrical Receptacle (Z82)
F85	NOT USED	F85UA	—	• Not Used
F86	ECM	F86UA	30A	• K20 Engine Control Module
F87	EVEN INJ / ECM	F87UA	20A	• K20 Engine Control Module (L8T) • T8B Ignition Coil 2 (L8T) • T8D Ignition Coil 4 (L8T) • T8F Ignition Coil 6 (L8T) • T8H Ignition Coil 8 (L8T)
F88	O2 B SNSR / MAF / ECM / EVAP / CWP / BCV	F88UA	15A	• B75 Mass Airflow Sensor • B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (L8T) • B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (L8T) • K20 Engine Control Module • M10 Charge Air Cooler Coolant Pump (L5P)
F89	O2 A SNSR / CNSTR PRGE / EPWR / WRAF / TURBO BYPASS / STEP CAM	F89UA	15A	• B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L8T) • B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (L8T) • Q12 Evaporative Emission Canister Purge Solenoid Valve (L8T) • G34 Evaporative Emission System Leak Detection Pump (L8T) • Q44 Engine Oil Pressure Control Solenoid Vlave (L8T)
F90	ODD INJ / ECM	F90UA	20A	• K20 Engine Control Module (L8T) • T8A Ignition Coil 1 (L8T) • T8C Ignition Coil 3 (L8T) • T8E Ignition Coil 5 (L8T) • T8G Ignition Coil 7 (L8T)
F91	NOT USED	F91UA	15A	• K20 Engine Control Module
F92	AERO SHUTTER	F92UA	10A	• M96A Active Grille Air Shutter Actuator 1 (VTI) • Q85 Cooling Fan Clutch (L5P)
Relays				
K5	REAR DEFOG	KR5 Rear Window Defogger Relay	—	• F12UA
K18	DC/AC INV	KR202 Accessory AC and DC Power Control Module Relay	—	• F19UA
K23	FUEL HTR	KR22 Fuel Heater Relay	—	• R29 Fuel Filter (L5P)

Usage Table (cont'd)

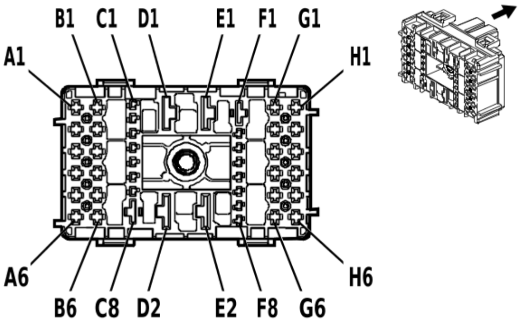
No.	Device Label Name	Device Assigned Name	Rating	Description
K35	TRLR PRK LAMP/ FRT GRILLE LAMP	KR53 Parking Lamp Relay	—	• F28UA • F41UA
K36	RUN/CRNK	KR73 Ignition Main Relay	—	• F33UA • F37UA • F38UA • F39UA • F40UA • F44UA • F46UA
K43	SECD AXLE MTR	KR203 Front Drive Axle Actuator Relay	—	• M26 Front Drive Axle Actuator
K59	A/C CLTCH	KR29 A/C Compressor Clutch Relay	—	• F50UA
K64	STRTR MTR	KR27 Starter Motor	—	• M64 Starter Motor
K77	PWR/TRN	KR75 Engine Controls Ignition Relay	—	• F86UA • F87UA • F88UA • F89UA • F90UA • F91UA • F92UA • KR29 Air Conditioning Compressor Relay
Note: Relays listed below are non-serviceable Printed Circuit Board (PCB) relays and are internal to the block.				
—	—	KR3 Horn Relay	—	• F27UA
—	—	KR11 Windshield Washer Pump Relay	—	• G24 Windshield Washer Pump
—	—	KR12B Windshield Wiper Motor Relay	—	• M75 Windshield Wiper Motor
—	—	KR12C Windshield Wiper Motor Speed Control Relay	—	• M75 Windshield Wiper Motor
—	—	KR41 High Mount Stop Lamp Relay	—	• F53UA
—	—	KR61 Trailer Backup Lamp Relay	—	• F55UA
—	—	KR63L Trailer Stop/Turn Signal Lamp Relay - Left	—	• F73UA
—	—	KR63R Trailer Stop/Turn Signal Lamp Relay - Right	—	• F81UA
—	—	KR200 Engine Controls Sensor Supply Voltage Relay	—	• F60UA • F80UA

X50A Engine Wiring Harness Junction Block Bottom View



5041382

X50A Engine Wiring Harness Junction Block X1 FIGURESIO=6217869 Owner=Owner, Schematics LMD=26-Jan-2023



4994109

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33384590
Service Connector: 19370824
Description: 44-Way F 1.5, 2.8, 6.3 CTS, 9.5 MCON-LL Series(BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19369711	J-35616-14 (GN)	EL-38125-560A
II	84764079	J-35616-44 (YE)	J-38125-11A
III	84779405	J-35616-35 (VT)	J-38125-215A

X50A Engine Wiring Harness Junction Block X1

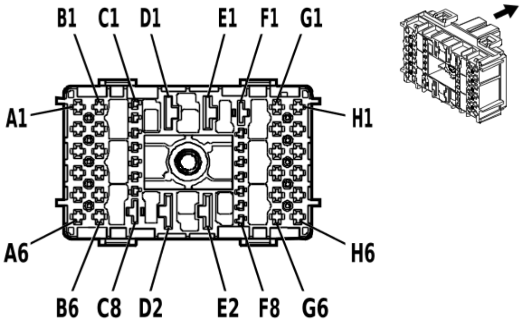
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1	—	—	—	Not Occupied	—	—
A2	1.5	RD / BU	540	Battery Positive Voltage	III	—
A3	0.35	BN / VT	193	Rear Defogger Relay Control	III	—
A4	0.5	BK	650	Ground	III	—
A5	0.75	GY / VT	228	Windshield Washer Pump Control	III	—
A6 - B1	—	—	—	Not Occupied	—	—
B2	2.5	BN / VT	293	Rear Defogger Grid Control	III	—
B3 - C2	—	—	—	Not Occupied	—	—
C3	0.5	WH / GN	4628	DC/AC Inverter Relay Control	I	—
C4	0.35	BN / GY	2268	Windshield Washer Relay Control	I	—
C5 - C8	—	—	—	Not Occupied	—	—
D1	5	BN / BK	4629	DC/AC Inverter Control	II	—
D2	6	RD / WH	1642	Battery Positive Voltage	II	—
E1	—	—	—	Not Occupied	—	—
E2	6	RD / WH	1040	Battery Positive Voltage	II	—
F1 - F5	—	—	—	Not Occupied	—	—
F6	0.35	WH / VT	860	Windshield Wiper Switch High Signal	I	—
F7 - G2	—	—	—	Not Occupied	—	—

X50A Engine Wiring Harness Junction Block X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
G3	0.35	BU / VT	807	Ignition Off/Accessory Ignition Voltage	III	—
G4	0.5	GN / VT	5199	Run/Crank Relay Coil Control	III	—
G5	2	BK	150	Ground	III	—
G6	0.35	GY	91	Windshield Wiper Motor Relay Coil Control	III	—
H1	0.5	VT / BK	339	Run/Crank Ignition 1 Voltage	III	—
H2	0.75	VT / WH	1139	Run/Crank Ignition 1 Voltage	III	—
H3	0.5	VT / BK	739	Run/Crank Ignition 1 Voltage	III	—
H4	0.5	VT / WH	239	Run/Crank Ignition 1 Voltage	III	—
H5	2	WH	92	Windshield Wiper Motor High Speed Control	III	—
H6	2	YE / BN	95	Windshield Wiper Motor Low Speed Control	III	—

X50A Engine Wiring Harness Junction Block X2

FIGURESIO=6217870 Owner=Owner, Schematics LMD=26-Jan-2023



4994132

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33384594
Service Connector: 19371174
Description: 44-Way F 1.5, 2.8, 6.3 CTS, 9.5 MCON-LL Series(GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19369711	J-35616-14 (GN)	EL-38125-560A
II	84779405	J-35616-35 (VT)	J-38125-215A
III	Not required	J-35616-22 (RD)	No Tool Required

X50A Engine Wiring Harness Junction Block X2

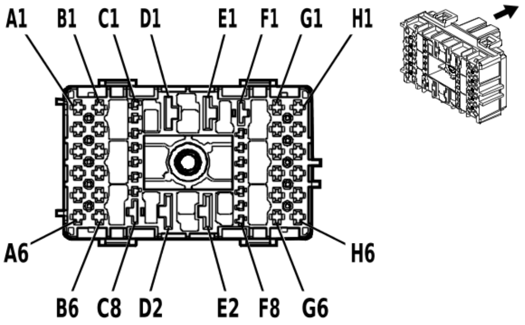
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1 - A4	—	—	—	Not Occupied	—	—
A5	1.5	RD / WH	640	Battery Positive Voltage	II	—
A6	1.5	RD / YE	740	Battery Positive Voltage	II	—
B1 - B4	—	—	—	Not Occupied	—	—
B5	0.5	RD / BU	840	Battery Positive Voltage	II	—
B6	1	GN / YE	6840	Auxiliary Device 2 Switched Voltage	II	—
C1	0.35	YE / BU	318	Left Rear Trailer Stop/Turn Lamp Control	I	—
C2	0.35	GN / BN	319	Right Rear Trailer Stop/Turn Lamp Control	I	—
C3 - D1	—	—	—	Not Occupied	—	—
D2	10	RD / GY	142	Battery Positive Voltage	III	—
E1	—	—	—	Not Occupied	—	—
E2	10	RD / GN	242	Battery Positive Voltage	III	—
F1	—	—	—	Not Occupied	—	—
F2	0.5 0.35	BN / YE BN / YE	820 820	Center High Mounted Stop Lamp Supply Voltage Center High Mounted Stop Lamp Supply Voltage	I I	UET - UET
F3	0.35	BU / BN	38	Backup Lamp Relay Control	I	—
F4	0.35	BN / WH	28	Horn Relay Control	I	—
F5 - F8	—	—	—	Not Occupied	—	—
G1	0.75	BN / GY	29	Horn Control	II	—

X50A Engine Wiring Harness Junction Block X2 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
G2	—	—	—	Not Occupied	—	—
G3	0.5	BN / GN	4246	Identification Lamp Control	II	—
G4	—	—	—	Not Occupied	—	—
G5	1.5	RD / BN	1440	Battery Positive Voltage	II	—
G6	1	RD / BN	1140	Battery Positive Voltage	II	—
H1	0.5	BU / BK	1053	Center High Mounted Stop Lamp Control 3	II	—
H2 - H5	—	—	—	Not Occupied	—	—
H6	0.35	WH / BN	7055	Auxiliary Park Lamp Relay Control	II	—

X50A Engine Wiring Harness Junction Block X3 (L5P)

FIGURESIO=6217871 Owner=Owner, Schematics
LMD=26-Jan-2023



4992608

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33384584
Service Connector: 19371176
Description: 44-Way F 1.5, 2.8, 6.3 CTS, 9.5 MCON-LL Series(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19369711	J-35616-14 (GN)	EL-38125-560A
II	84764078	J-35616-42 (RD)	J-38125-215A
III	84779405	J-35616-35 (VT)	J-38125-215A

X50A Engine Wiring Harness Junction Block X3 (L5P)

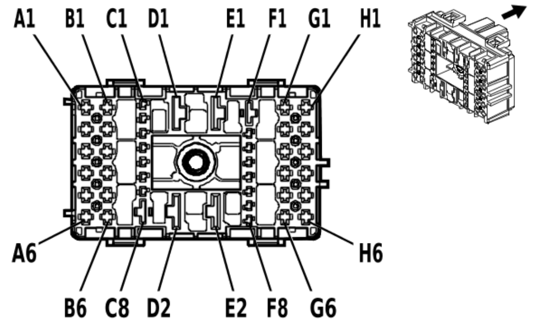
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1	0.75	VT / GN	439	Run/Crank Ignition 1 Voltage	III	—
A2 - A3	—	—	—	Not Occupied	—	—
A4	0.75	BN / GN	59	Air Conditioning Compressor Clutch Control	III	—
A5	—	—	—	Not Occupied	—	—
A6	0.5	GN	8016	Secondary Axle Motor Control	III	—
B1	0.5	WH	2368	Cooling Fan Control Signal	III	—
B2	0.5	VT / BU	5705	Powertrain Main Relay Control	III	—
B3	0.5	VT / GY	8017	Secondary Axle Motor Relay Control	III	—
B4 - B5	—	—	—	Not Occupied	—	—
B6	3	GN / RD	6042	Cruise Control Switch 5V Reference	III	—
C1	0.5	BU	3017	Fuel Heater Relay 1 Control	I	—
C2	0.5	WH / BK	2366	Cooling Fan Speed Control Signal	I	—
C3	1.5	BK	450	Ground	I	—
C4	0.5	WH / GY	459	Air Conditioning Compressor Clutch Relay Control	I	—
C5	0.5	GN / BU	3889	Powertrain Sensor Bus Relay Control	I	—
C6	0.75	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
C7 - E2	—	—	—	Not Occupied	—	—

X50A Engine Wiring Harness Junction Block X3 (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
F1	2.5	YE	6	Starter Solenoid Crank Ignition Voltage	II	—
F2	0.5	YE / BK	625	Starter Enable Relay Control	I	—
F3	0.75	RD / BN	440	Battery Positive Voltage	I	—
F4	0.5	YE	5991	Powertrain Relay Coil Control	I	—
F5 - F6	—	—	—	Not Occupied	—	—
F7	0.5	VT / BU	5705	Powertrain Main Relay Control	I	—
F8 - G4	—	—	—	Not Occupied	—	—
G5	1.5	VT / GN	4320	Powertrain Sensor Bus Enable	III	—
G6	—	—	—	Not Occupied	—	—
H1	4	VT / BU	5290	Powertrain Main Relay Fused Supply Voltage 1	III	—
H2	—	—	—	Not Occupied	—	—
H3	1	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	III	—
H4 - H5	—	—	—	Not Occupied	—	—
H6	2.5	VT / BU	5290	Powertrain Main Relay Fused Supply Voltage 1	III	—

X50A Engine Wiring Harness Junction Block X3 (L8T)

FIGURESIO=6217872 Owner=Owner, Schematics
LMD=26-Jan-2023



4992608

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33384584
Service Connector: 19371176
Description: 44-Way F 1.5, 2.8, 6.3 CTS, 9.5 MCON-LL Series(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19369711	J-35616-14 (GN)	EL-38125-560A
II	84764078	J-35616-42 (RD)	J-38125-215A
III	84779405	J-35616-35 (VT)	J-38125-215A

X50A Engine Wiring Harness Junction Block X3 (L8T)

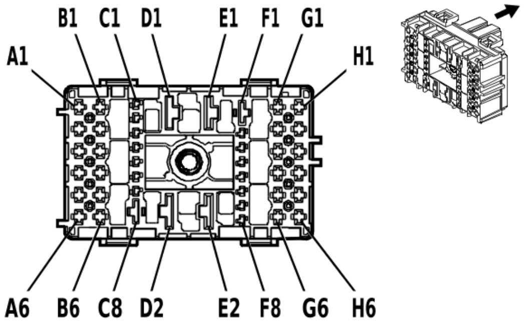
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1	0.75	VT / GN	439	Run/Crank Ignition 1 Voltage	III	—
A2 - A3	—	—	—	Not Occupied	—	—
A4	0.75	BN / GN	59	Air Conditioning Compressor Clutch Control	III	—
A5	—	—	—	Not Occupied	—	—
A6	0.5	GN	8016	Secondary Axle Motor Control	III	—
B1 - B2	—	—	—	Not Occupied	—	—
B3	0.5	VT / GY	8017	Secondary Axle Motor Relay Control	III	—
B4 - B5	—	—	—	Not Occupied	—	—
B6	3	GN / RD	6042	Cruise Control Switch 5V Reference	III	—
C1 - C2	—	—	—	Not Occupied	—	—
C3	1.5	BK	450	Ground	I	—
C4	0.5	WH / GY	459	Air Conditioning Compressor Clutch Relay Control	I	—
C5 - E2	—	—	—	Not Occupied	—	—
F1	2.5	YE	6	Starter Solenoid Crank Ignition Voltage	II	—
F2	0.5	YE / BK	625	Starter Enable Relay Control	I	—
F3	0.5	RD / BN	440	Battery Positive Voltage	I	—
F4	0.5	YE	5991	Powertrain Relay Coil Control	I	—

X50A Engine Wiring Harness Junction Block X3 (L8T) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
F5	0.5	RD / WH	3440	Battery Positive Voltage	I	—
F6	—	—	—	Not Occupied	—	—
F7	0.5	VT / BU	5705	Powertrain Main Relay Control	I	—
F8 - G1	—	—	—	Not Occupied	—	—
G2	1	VT / BU	5292	Powertrain Main Relay Fused Supply Voltage 3	III	—
G3	—	—	—	Not Occupied	—	—
G4	0.75	VT / BU	5293	Powertrain Main Relay Fused Supply Voltage 4	III	—
G5	—	—	—	Not Occupied	—	—
G6	0.75	VT / BU	5291	Powertrain Main Relay Fused Supply Voltage 2	III	—
H1	2.5	VT / BU	5290	Powertrain Main Relay Fused Supply Voltage 1	III	—
H2	0.75	VT / BU	5292	Powertrain Main Relay Fused Supply Voltage 3	III	—
H3	1	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	III	—
H4	0.75	VT / BU	5293	Powertrain Main Relay Fused Supply Voltage 4	III	—
H5	1	VT / BU	5291	Powertrain Main Relay Fused Supply Voltage 2	III	—
H6	0.75	VT / BU	5290	Powertrain Main Relay Fused Supply Voltage 1	III	—

X50A Engine Wiring Harness Junction Block X4

FIGURESIO=6217873 Owner=Owner, Schematics LMD=26-Jan-2023



4993031

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33384574
Service Connector: 19371188
Description: 44-Way F 1.5, 2.8, 6.3 CTS, 9.5 MCON-LL Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19369711	J-35616-14 (GN)	EL-38125-560A
II	84764078	J-35616-42 (RD)	J-38125-215A
III	84764079	J-35616-44 (YE)	J-38125-11A
IV	84779405	J-35616-35 (VT)	J-38125-215A

X50A Engine Wiring Harness Junction Block X4

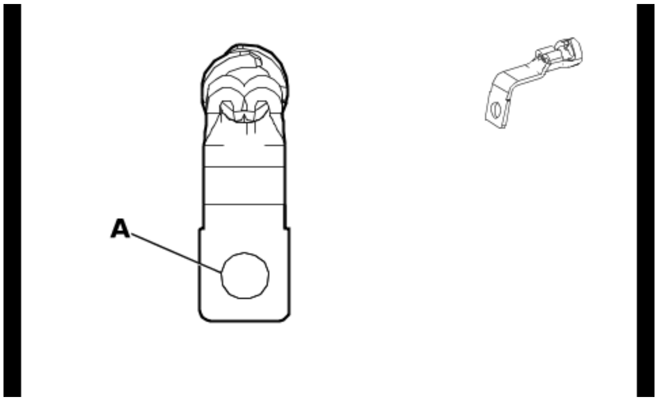
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1 - A2	—	—	—	Not Occupied	—	—
A3	1.5	BN	2109	Trailer Park Lamp Control	IV	—
A4	0.5	RD / WH	6440	Battery Positive Voltage	IV	—
A5	—	—	—	Not Occupied	—	—
A6	0.5	VT / WH	639	Run/Crank Ignition 1 Voltage	IV	—
B1	0.5	RD / WH	640	Battery Positive Voltage	IV	—
B2	1	GY	1624	Trailer Backup Lamp Control	IV	—
B3	—	—	—	Not Occupied	—	—
B4	0.5	RD / GN	6940	Battery Positive Voltage	IV	—
B5 - B6	—	—	—	Not Occupied	—	—
C1	0.5	RD / WH	5740	Battery Positive Voltage	I	—
C2 - C6	—	—	—	Not Occupied	—	—
C7	0.5 1.5	RD / WH RD / WH	3440 3440	Battery Positive Voltage Battery Positive Voltage	I I	FHS L5P
C8	2.5	BN / YE	2996	Fuel Heater Control 1	II	—
D1	—	—	—	Not Occupied	—	—
D2	4	RD / BN	3640	Battery Positive Voltage	III	—
E1 - E2	—	—	—	Not Occupied	—	—

X50A Engine Wiring Harness Junction Block X4 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
F1	2.5	RD / WH	2040	Battery Positive Voltage	II	—
F2 - G2	—	—	—	Not Occupied	—	—
G3	1	YE	1618	Left Rear Trailer Stop/Turn Lamp Control	IV	—
G4	2.5	RD / YE	5840	Battery Positive Voltage	IV	—
G5	1.5	RD / BN	5940	Battery Positive Voltage	IV	—
G6	2.5	RD / WH	1040	Battery Positive Voltage	IV	—
H1 - H2	—	—	—	Not Occupied	—	—
H3	1	GN	1619	Right Rear Trailer Stop/Turn Lamp Control	IV	—
H4	2.5	RD / VT	5640	Battery Positive Voltage	IV	—
H5	2.5	RD / VT	1940	Battery Positive Voltage	IV	—
H6	4	RD / BU	3940	Battery Positive Voltage	IV	K4B
	4	OG	3940	Battery Positive Voltage	IV	L8T

X50A Engine Wiring Harness Junction Block X5

FIGURESIO=6258128 Owner=Owner, Schematics LMD=26-Jan-2023



5525767

Connector Part Information

Harness Type: Starter Solenoid Cable
OEM Connector: 84386513
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

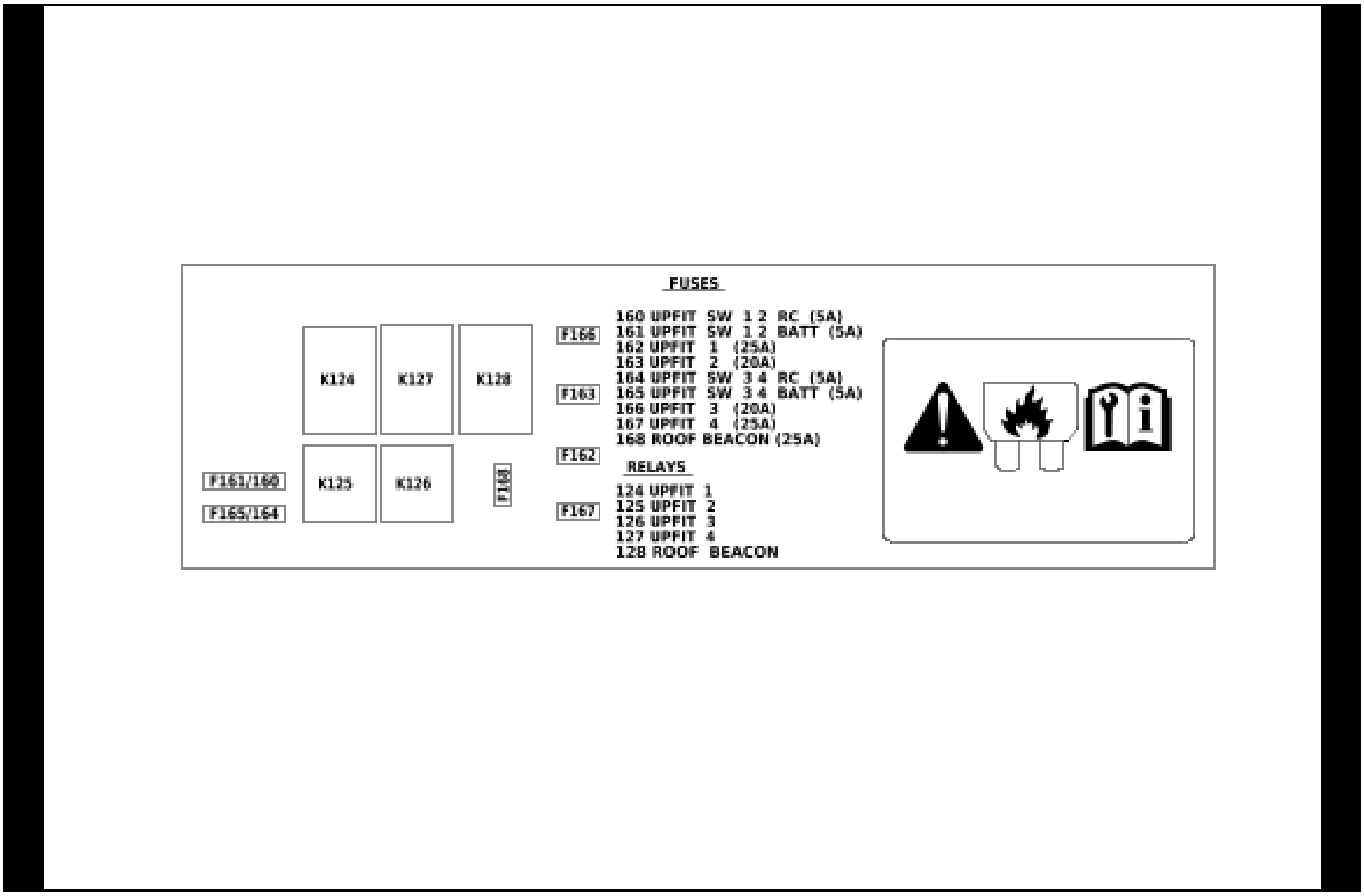
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X50A Engine Wiring Harness Junction Block X5

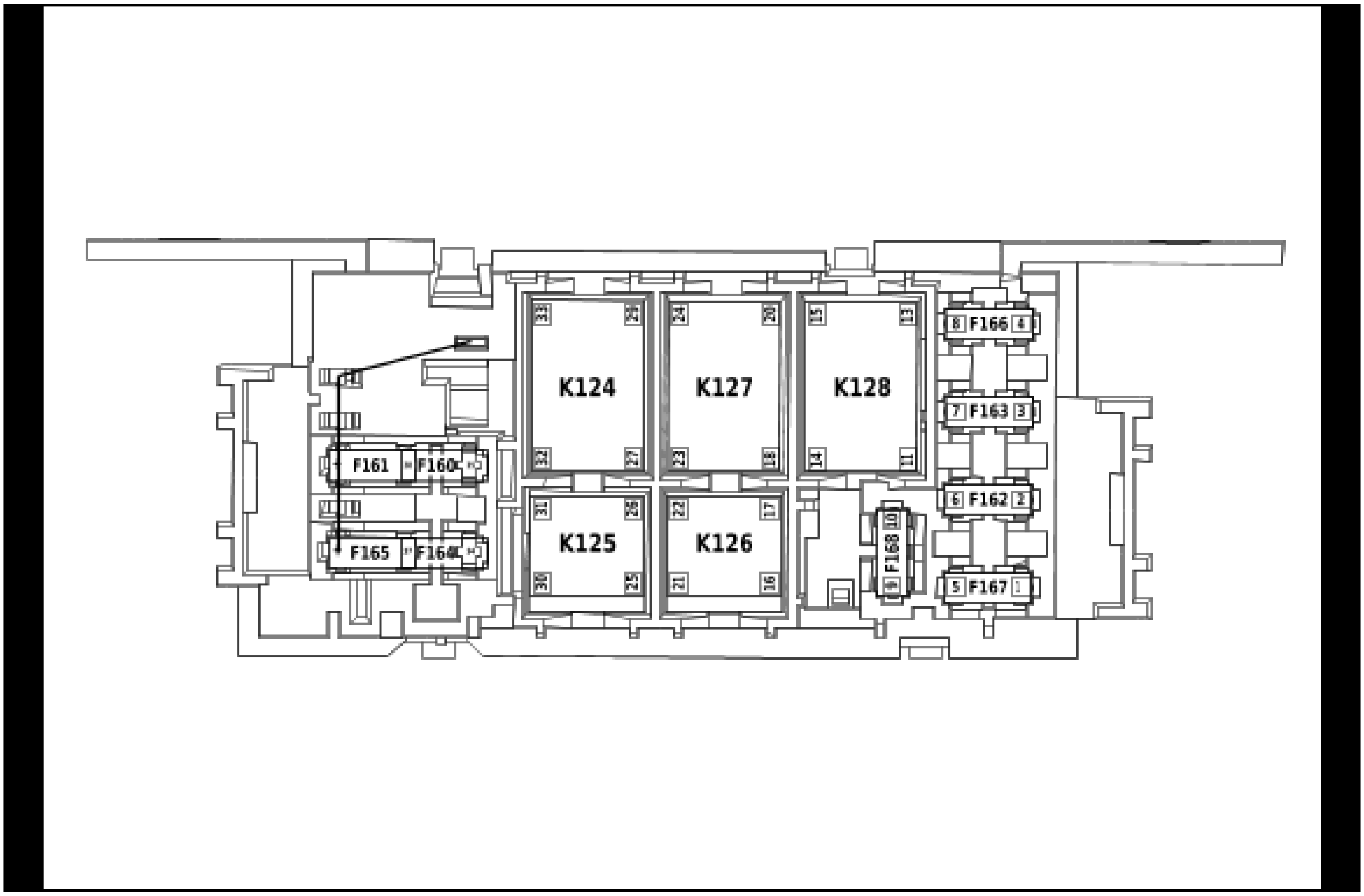
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	35	RD / GN	242	Battery Positive Voltage	I	—

X51AX Instrument Panel Wiring Harness Junction Block - Auxiliary Label (9L7)


FUSES
160 UPFIT SW 1 2 RC (5A)
161 UPFIT SW 1 2 BATT (5A)
162 UPFIT 1 (25A)
163 UPFIT 2 (20A)
164 UPFIT SW 3 4 RC (5A)
165 UPFIT SW 3 4 BATT (5A)
166 UPFIT 3 (20A)
167 UPFIT 4 (25A)
168 ROOF BEACON (25A)
RELAYS
124 UPFIT 1
125 UPFIT 2
126 UPFIT 3
127 UPFIT 4
128 ROOF BEACON
K124
K127
K128
K125
K126
F166
F163
F162
F167
F168
F161/160
F165/164

5969422

X51AX Instrument Panel Wiring Harness Junction Block - Auxiliary Top View (9L7)



5988611

Usage Table

No.	Device Label Name	Device Assigned Name	Rating	Description
Fuses				
F160	UPFIT SW 1 2 RC	F160DA	5A	• KR161AA Configurable/Accessory Provision Relay 1 • KR161BA Configurable/Accessory Provision Relay 2
F161	UPFIT SW 1 2 BATT	F161DA	5A	• KR161AA Configurable/Accessory Provision Relay 1 • KR161BA Configurable/Accessory Provision Relay 2
F162	UPFIT 1	F162DA	25A	• X79A Configurable/Accessory Provision Supply Connector
F163	UPFIT 2	F163DA	20A	• X79A Configurable/Accessory Provision Supply Connector
F164	UPFIT SW 3 4 RC	F164DA	5A	• KR161CA Configurable/Accessory Provision Relay 3 • KR161DA Configurable/Accessory Provision Relay 4 • KR161EA Configurable/Accessory Provision Relay 5
F165	UPFIT SW 3 4 BATT	F165DA	5A	• KR161CA Configurable/Accessory Provision Relay 3 • KR161DA Configurable/Accessory Provision Relay 4 • KR161EA Configurable/Accessory Provision Relay 5
F166	UPFIT 3	F166DA	20A	• X79A Configurable/Accessory Provision Supply Connector
F167	UPFIT 4	F167DA	25A	• X79A Configurable/Accessory Provision Supply Connector
F168	ROOF BEACON	F168DA	25A	• W11 Blunt Cut - Emergency Vehicle Roof Lamp

Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
Relays				
K124	UPFIT 1	KR161AA Configurable/Accessory Provision Relay 1	—	• F162DA
K125	UPFIT 2	KR161BA Configurable/Accessory Provision Relay 2	—	• F163DA
K126	UPFIT 3	KR161CA Configurable/Accessory Provision Relay 3	—	• F166DA
K127	UPFIT 4	KR161DA Configurable/Accessory Provision Relay 4	—	• F167DA
K128	ROOF BEACON	KR161EA Configurable/Accessory Provision Relay 5	—	• F168DA

X51AX Instrument Panel Wiring Harness Junction Block - Auxiliary

—

Connector Part Information

Harness Type: Auxiliary Fuse Block Wiring Harness
OEM Connector: 33323307
Service Connector: Service by Component Assembly - See Part Catalog
Description: Wire Entry Fuse Block

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-22 (RD)	No Tool Required
II	Not required	J-35616-35 (VT)	No Tool Required
III	Not required	J-35616-4A (PU)	No Tool Required

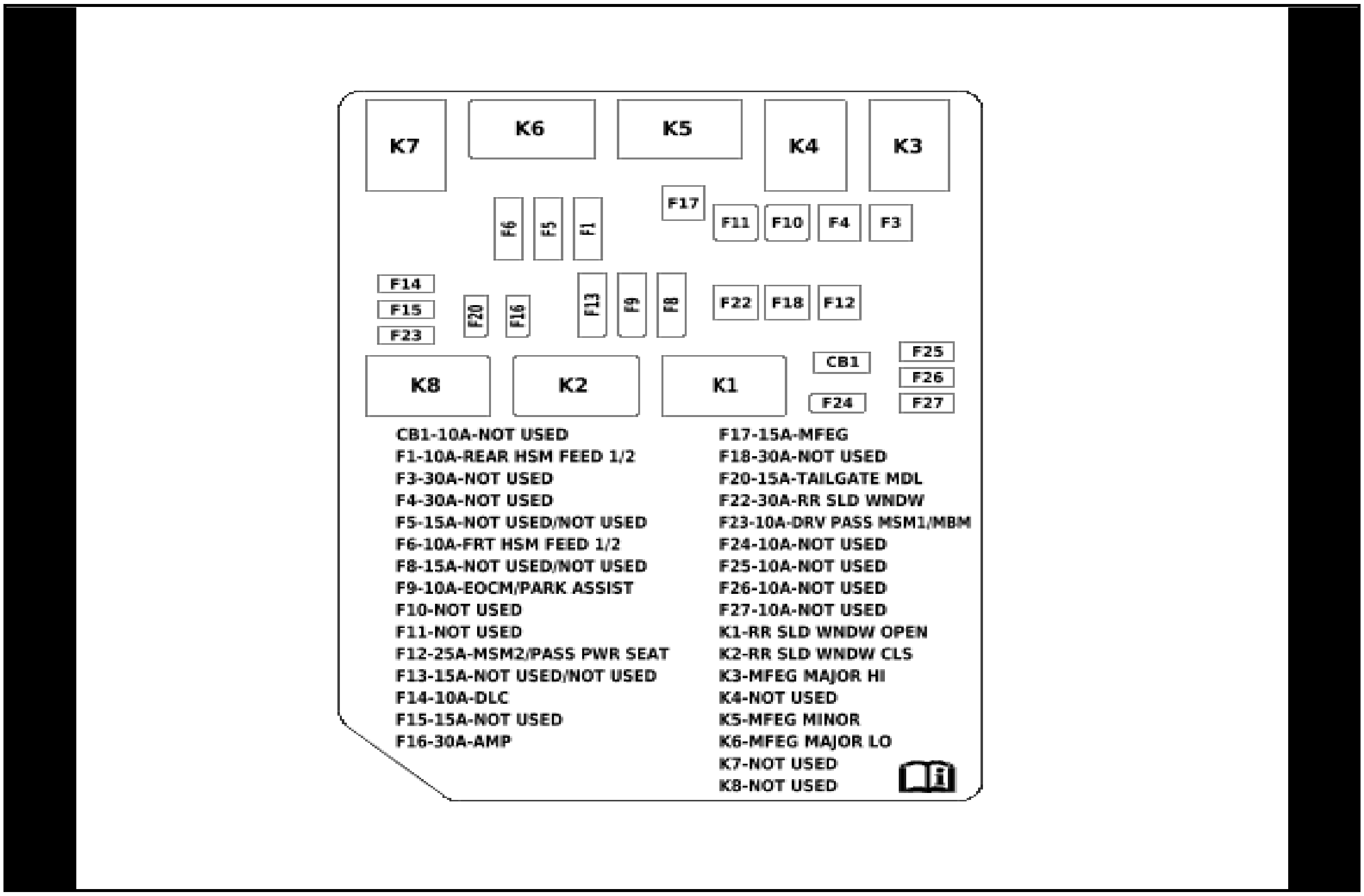
X51AX Instrument Panel Wiring Harness Junction Block - Auxiliary

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	YE / BN	10734	Upfitter Accessory 4 Supply Voltage	III	—
2	2.5	BU	10731	Upfitter Accessory 1 Supply Voltage	III	—
3	2.5	GY / BK	10732	Upfitter Accessory 2 Supply Voltage	III	—
4	2.5	BN / WH	10733	Upfitter Accessory 3 Supply Voltage	III	—
5	2.5	YE	10729	Upfitter Accessory Fuse 4 Supply Voltage	III	—
6	2.5	BU / GN	10726	Upfitter Accessory Fuse 1 Supply Voltage	III	—
7	2.5	GY	10727	Upfitter Accessory Fuse 2 Supply Voltage	III	—
8	2.5	BN	10728	Upfitter Accessory Fuse 3 Supply Voltage	III	—
9	2.5	VT / BU	10735	Upfitter Accessory 5 Supply Voltage	III	—
10	2.5	VT	10730	Upfitter Accessory Fuse 5 Supply Voltage	III	—
11	2.5	VT	10730	Upfitter Accessory Fuse 5 Supply Voltage	III	—
13	0.35	VT / BN	10723	Upfitter Accessory Relay 3 Coil Supply Voltage	II	—
14	0.35	GY / VT	10720	Upfitter Accessory Relay 5 Coil Control	II	—
15	2.5	RD / VT	542	Battery Positive Voltage	III	—
16	2.5	RD / VT	542	Battery Positive Voltage	III	—
17	0.35	GN / BN	10718	Upfitter Accessory Relay 3 Coil Control	II	—
18	2.5	YE	10729	Upfitter Accessory Fuse 4 Supply Voltage	III	—
20	0.35	VT / BN	10723	Upfitter Accessory Relay 3 Coil Supply Voltage	III	—
21	0.35	VT / BN	10723	Upfitter Accessory Relay 3 Coil Supply Voltage	III	—
22	2.5	BN	10728	Upfitter Accessory Fuse 3 Supply Voltage	III	—
23	0.35	WH / YE	10719	Upfitter Accessory Relay 4 Coil Control	II	—
24	2.5	RD / VT	542	Battery Positive Voltage	III	—
25	2.5	RD / VT	542	Battery Positive Voltage	III	—
26	0.35	VT / GY	10717	Upfitter Accessory Relay 2 Coil Control	II	—
27	2.5	BU / GN	10726	Upfitter Accessory Fuse 1 Supply Voltage	III	—
29	0.35	BU / VT	10721	Upfitter Accessory Relay 1 Coil Supply Voltage	III	—
30	0.35	BU / VT	10721	Upfitter Accessory Relay 1 Coil Supply Voltage	II	—
31	2.5	GY	10727	Upfitter Accessory Fuse 2 Supply Voltage	III	—

X51AX Instrument Panel Wiring Harness Junction Block - Auxiliary (cont'd)

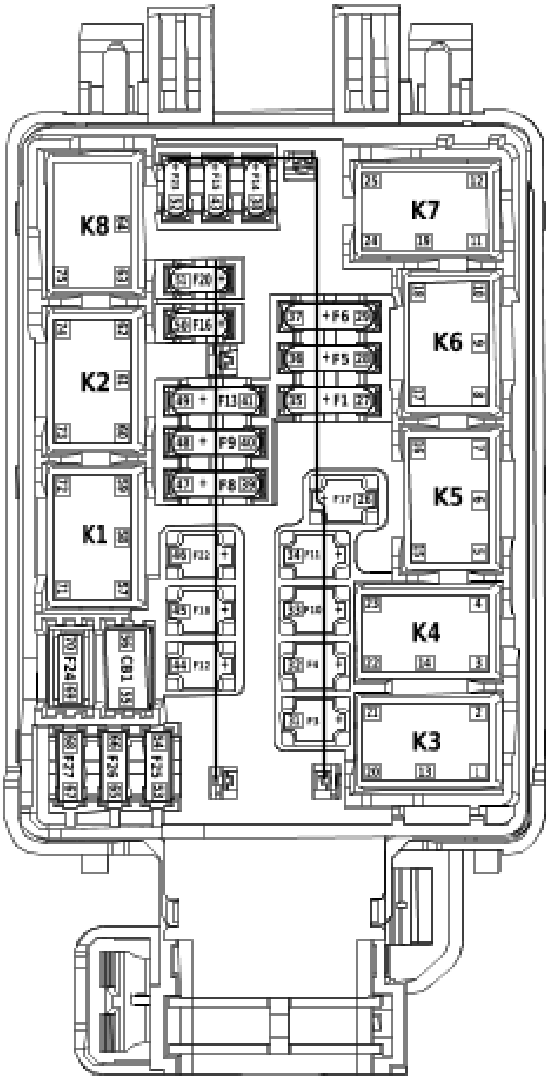
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
32	0.35	BU / WH	10716	Upfitter Accessory Relay 1 Coil Control	II	—
33	2.5	RD / VT	542	Battery Positive Voltage	III	—
34	0.5	VT / BK	339	Run/Crank Ignition 1 Voltage	III	—
35	0.5	VT / BK	339	Run/Crank Ignition 1 Voltage	III	—
36	10	RD / VT	542	Battery Positive Voltage	I	—
37	0.35	VT / BN	10723	Upfitter Accessory Relay 3 Coil Supply Voltage	II	—
38	0.35	BU / VT	10721	Upfitter Accessory Relay 1 Coil Supply Voltage	II	—
39	2.5	RD / VT	542	Battery Positive Voltage	III	—
40	2.5	RD / VT	542	Battery Positive Voltage	III	—
41	2.5	RD / VT	542	Battery Positive Voltage	III	—
42	2.5	RD / VT	542	Battery Positive Voltage	III	—
43	2.5	RD / VT	542	Battery Positive Voltage	III	—

X53AF Body Wiring Harness Junction Block Label


K7
K6
K5
K4
K3
F17
F6
F5
F1
F11
F10
F4
F3
F14
F15
F23
F20
F16
F13
F9
F8
F22
F18
F12
CB1
F25
F26
F27
F24
K8
K2
K1
CB1-10A-NOT USED
F1-10A-REAR HSM FEED 1/2
F3-30A-NOT USED
F4-30A-NOT USED
F5-15A-NOT USED/NOT USED
F6-10A-FRT HSM FEED 1/2
F8-15A-NOT USED/NOT USED
F9-10A-EOCM/PARK ASSIST
F10-NOT USED
F11-NOT USED
F12-25A-MSM2/PASS PWR SEAT
F13-15A-NOT USED/NOT USED
F14-10A-DLC
F15-15A-NOT USED
F16-30A-AMP
F17-15A-MFEG
F18-30A-NOT USED
F20-15A-TAILGATE MDL
F22-30A-RR SLD WNDW
F23-10A-DRV PASS MSM1/MBM
F24-10A-NOT USED
F25-10A-NOT USED
F26-10A-NOT USED
F27-10A-NOT USED
K1-RR SLD WNDW OPEN
K2-RR SLD WNDW CLS
K3-MFEG MAJOR HI
K4-NOT USED
K5-MFEG MINOR
K6-MFEG MAJOR LO
K7-NOT USED
K8-NOT USED

5969417

X53AF Body Wiring Harness Junction Block Top View


K8
K7
F20
F16
K2
F6
F5
F1
K6
F13
F9
F8
K1
F17
K5
F22
F18
F12
F11
F10
F4
F3
K4
K3
F24
CB1
F27
F26
F25

6094371

Usage Table

No.	Device Label Name	Device Assigned Name	Rating	Description
Fuses				
F1	REAR HSM FEED 1/2	F1DL	10A	• K234 Rear Seat Heater Vent Control Module (KA6)
F3	NOT USED	F3DL	30A	• Not Used
F4	NOT USED	F4DL	30A	• Not Used
F5	NOT USED/NOT USED	F5DL	15A	• Not Used
F6	FRT HSM FEED 1/2	F6DL	10A	• K29FV Front Seat Heater Vent Control Module (KA1/KQV)
F8	NOT USED/NOT USED	F8DL	15A	• Not Used
F9	EOCM/PARK ASSIST	F9DL	10A	• K182 Parking Assist Control Module (UD5/UD7)

Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
F10	NOT USED	F10DL	30A	• Not Used
F11	NOT USED	F11DL	30A	• Not Used
F12	MSM2/PASS PWR SEAT	F12DL	25A	• K40P Passenger Seat Adjuster Memory Module (AKE) • S64P Front Seat Adjuster Switch - Passenger (A7K-AKE)
F13	NOT USED/NOT USED	F13DL	15A	• Not Used
F14	DLC	F14DL	10A	• X84 Data Link Connector
F15	NOT USED	F15DL	15A	• Not Used
F16	AMP	F16DL	30A	• T3 Audio Amplifier (UQA)
F17	MFEG	F17DL	15A	• KR191S Pickup Box Endgate Latch Relay - Supply Voltage (QT5) • KR192 Pickup Box Auxiliary Endgate Latch Relay (QK2+QT5)
F18	NOT USED	F18DL	30A	• Not Used
F20	TAILGATE MDL	F20DL	15A	• K194 Rear Gate Module (QT6)
F22	RR SLD WNDW	F22DL	30A	• KR206C Rear Sliding Window Close Relay (A48) • KR206O Rear Sliding Window Open Relay (A48)
F23	DRV PASS MSM1/MBM	F23DL	10A	• K104D Front Seat Bladder Control Module - Driver (AVK-AF6) • K104DP Front Seat Bladder Control Module - Driver Primary (AF6) • K104DS Front Seat Bladder Control Module - Driver Secondary (AF6) • K40D Front Seat Adjuster Switch - Driver (A45) • K104P Front Seat Bladder Control Module - Passenger (AVU-AKE) • K104PP Front Seat Bladder Control Module - Passenger Primary (AKE) • K104PS Front Seat Bladder Control Module - Passenger Secondary (AKE) • K40P Passenger Seat Adjuster Memory Module (AKE) • S64D Front Seat Adjuster Switch - Driver (A45) • S64P Front Seat Adjuster Switch - Passenger (AKE) • S65D Front Seat Lumbar Switch - Driver (AVK-A45) • S65P Front Seat Lumbar Switch - Passenger (A7K-AVU-AKE) • E14D Front Seat Cushion Heater - Passenger (KA1) • E14C Front Seat Back Heater - Passenger (KA1)
F24	NOT USED	F24DL	10A	• Not Used
F25	NOT USED	F25DL	10A	• Not Used
F26	NOT USED	F26DL	10A	• Not Used
F27	NOT USED	F27DL	10A	• Not Used
Circuit Breakers				
CB1	NOT USED	CB1DL	10A	• Not Used
Relays				
K1	RR SLD WNDW OPEN	KR206O Rear Sliding Window Open Relay	—	• M63 Rear Sliding Window Motor (A48)

Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
K2	RR WNDW CLS	KR206C Rear Sliding Window Close Relay	—	• M63 Rear Sliding Window Motor (A48)
K3	MFEG MAJOR HI	KR191G Pickup Box Endgate Latch Relay - Ground	—	• A99L Pickup Box Endgate Latch - Left (QK2+QT5) • A99R Pickup Box Endgate Latch - Right (QK2+QT5) • M14A Pickup Box Endgate Lock Actuator (QK1+QT5)
K4	NOT USED	—	—	• Not Used
K5	MFEG MINOR	KR192 Pickup Box Auxiliary Endgate Latch Relay	—	• A100L Pickup Box Auxiliary Endgate Latch - Left (QK2+QT5) • A100R Pickup Box Auxiliary Endgate Latch - Right (QK2+QT5)
K6	MFEG MAJOR LO	KR191S Pickup Box Endgate Latch Relay - Supply Voltage	—	• A99L Pickup Box Endgate Latch - Left (QK2+QT5) • A99R Pickup Box Endgate Latch - Right (QK2+QT5) • M14A Pickup Box Endgate Lock Actuator (QK1+QT5)
K7	NOT USED	—	—	• Not Used
K8	NOT USED	—	—	• Not Used

X53AF Body Wiring Harness Junction Block Wire Entry View

—

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35232561
Service Connector: Service by Component Assembly - See Part Catalog
Description: Wire Entry Fuse Block

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19332366	J-35616-35 (VT)	J-38125-212
II	Not required	J-35616-22 (RD)	No Tool Required

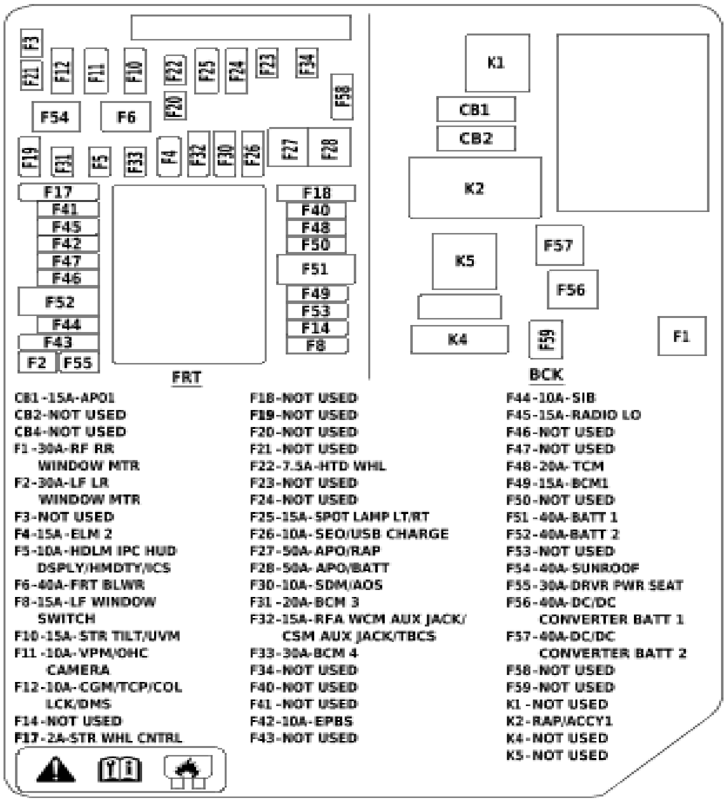
X53AF Body Wiring Harness Junction Block Wire Entry View

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH / GN	7728	Major Endgate High Relay Control	I	—
2	1	GN	1299	Major Endgate Motor Control	I	—
5	1	VT	7725	Minor Endgate Motor Control	I	—
7	0.75	WH / GY	7297	Minor Endgate High Relay Control	I	—
8	1.5	BK	1550	Ground	I	—
10	0.75	BU / VT	7729	Major Endgate Low Relay Control	I	—
15	0.5	BK	1550	Ground	I	—
16	1	RD / BN	8240	Battery Positive Voltage	I	—
17	0.5	BK	1550	Ground	I	—
18	1	YE / BK	7730	Major Endgate Motor Low Reference	I	—
20	1	RD / BN	8240	Battery Positive Voltage	I	—
21	0.5	BK	1550	Ground	I	—
26	1	RD / BN	8240	Battery Positive Voltage	I	—
27	0.75	RD / WH	5740	Battery Positive Voltage	I	—
29	0.75	RD / BN	6640	Battery Positive Voltage	I	—
30	10	RD / GY	142	Battery Positive Voltage	II	—
35	0.75	RD / BU	6740	Battery Positive Voltage	I	—
37	0.75	RD / GN	6140	Battery Positive Voltage	I	—
38	0.5	RD / YE	6540	Battery Positive Voltage	I	—
41	0.5	RD / VT	2640	Battery Positive Voltage	I	—
42	10	RD / GN	242	Battery Positive Voltage	II	—
44	2.5	RD / YE	7440	Battery Positive Voltage	I	—
46	2.5	RD / VT	8640	Battery Positive Voltage	I	—
48	0.5	RD / WH	4740	Battery Positive Voltage	I	—
49	0.5	RD / BU	4540	Battery Positive Voltage	I	—
50	2.5	RD / YE	3740	Battery Positive Voltage	I	—
51	2.5	RD / VT	4442	Primary Fused Battery Positive Voltage	I	—
52	0.5	RD / BN	2240	Battery Positive Voltage	I	—
57	2.5	RD / VT	8640	Battery Positive Voltage	I	—

X53AF Body Wiring Harness Junction Block Wire Entry View (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
58	2.5	BK	1550	Ground	I	—
59	0.5	BK	1550	Ground	I	—
60	2.5	RD / VT	8640	Battery Positive Voltage	I	—
61	2.5	BK	1550	Ground	I	—
62	0.5	BK	1550	Ground	I	—
71	0.5	YE / VT	6191	Power Rear Window Switch Open Signal	I	—
72	2	VT / YE	7453	Window Motor Rear Auxiliary Open Control	I	—
73	0.5	WH	6192	Sliding Rear Window Switch Close Signal	I	—
74	2	YE	7454	Window Motor Rear Auxiliary Close Control	I	—

X51R Instrument Panel Wiring Harness Junction Block - Right Label


F3
F21
F12
F11
F10
F22
F25
F24
F23
F34
F58
F54
F6
F20
F19
F31
F5
F33
F4
F32
F30
F26
F27
F28
F17
F41
F45
F42
F47
F46
F52
F44
F43
F2
F55
F18
F40
F48
F50
F51
F49
F53
F14
F8
FRT
K1
CB1
CB2
K2
K5
F57
F56
K4
F59
BCK
F1

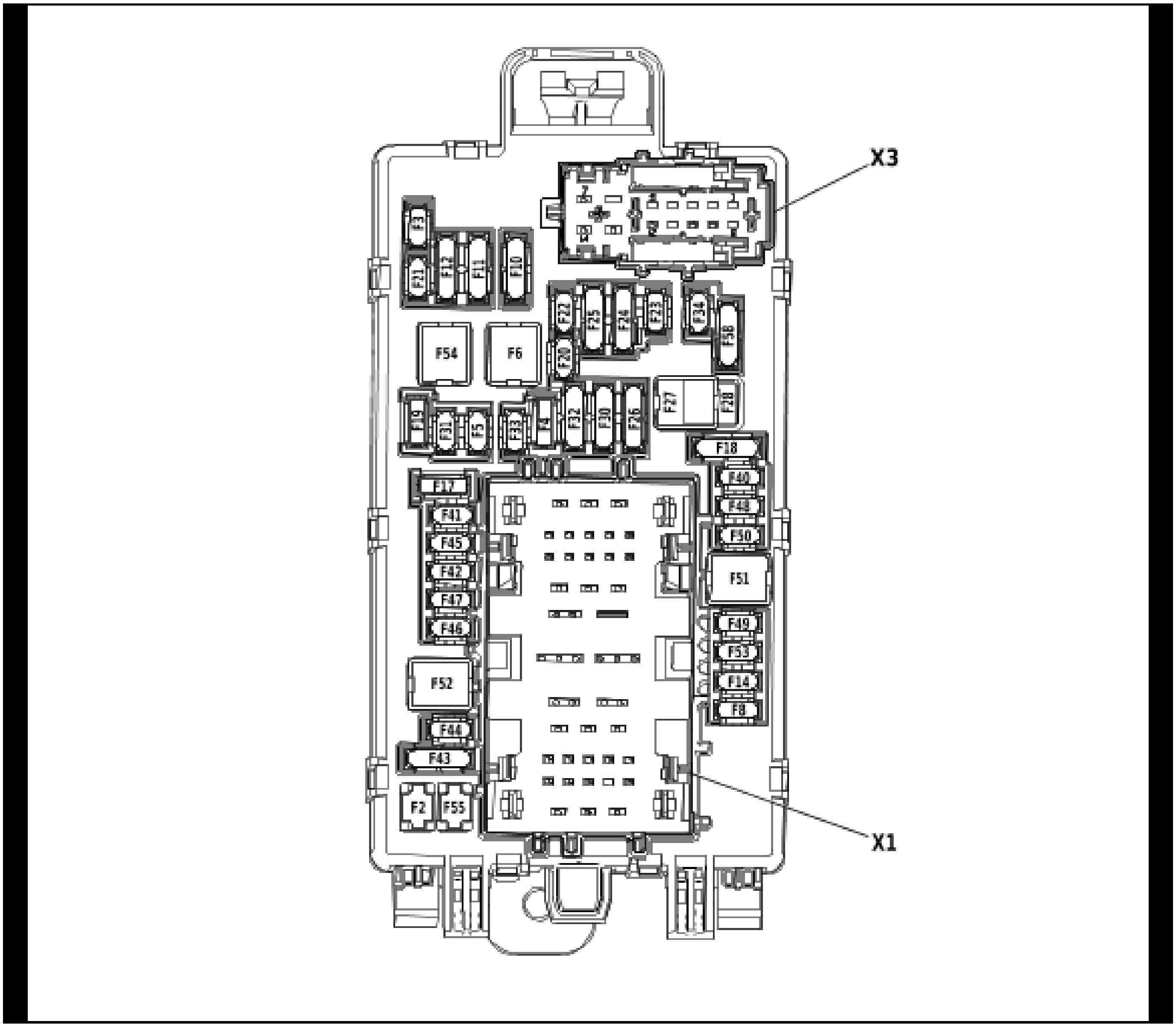
CB1-15A-APO1
CB2-NOT USED
CB4-NOT USED
F1-30A-RF RR WINDOW MTR
F2-30A-LF LR WINDOW MTR
F3-NOT USED
F4-15A-ELM 2
F5-10A-HDLM IPC HUD DSPLY/HMDTY/ICS
F6-40A-FRT BLWR
F8-15A-LF WINDOW SWITCH
F10-15A-STR TILT/UVM
F11-10A-VPM/OHC CAMERA
F12-10A-CGM/TCP/COL LCK/DMS
F14-NOT USED
F17-2A-STR WHL CNTRL

F18-NOT USED
F19-NOT USED
F20-NOT USED
F21-NOT USED
F22-7.5A-HTD WHL
F23-NOT USED
F24-NOT USED
F25-15A-SPOT LAMP LT/RT
F26-10A-SEO/USB CHARGE
F27-50A-APO/RAP
F28-50A-APO/BATT
F30-10A-SDM/AOS
F31-20A-BCM 3
F32-15A-RFA WCM AUX JACK/CSM AUX JACK/TBCS
F33-30A-BCM 4
F34-NOT USED
F40-NOT USED
F41-NOT USED
F42-10A-EPBS
F43-NOT USED

F44-10A-SIB
F45-15A-RADIO LO
F46-NOT USED
F47-NOT USED
F48-20A-TCM
F49-15A-BCM1
F50-NOT USED
F51-40A-BATT 1
F52-40A-BATT 2
F53-NOT USED
F54-40A-SUNROOF
F55-30A-DRVR PWR SEAT
F56-40A-DC/DC CONVERTER BATT 1
F57-40A-DC/DC CONVERTER BATT 2
F58-NOT USED
F59-NOT USED
K1-NOT USED
K2-RAP/ACCY1
K4-NOT USED
K5-NOT USED

5969420

X51R Instrument Panel Wiring Harness Junction Block - Right Top View


X3
F3
F21
F12
F11
F10
F54
F6
F22
F25
F24
F23
F34
F58
F20
F27
F28
F19
F31
F5
F33
F4
F32
F30
F26
F18
F17
F41
F45
F42
F47
F46
F40
F48
F50
F51
F49
F53
F14
F8
F52
F44
F43
F2
F55
X1

5041376

Usage Table

No.	Device Label Name	Device Assigned Name	Rating	Description
Circuit Breakers				
CB4	NOT USED	—	—	• Not Used
Fuses				
F1	RF RR WINDOW MTR	F1DR	30A	• M74P Front Side Door Window Regulator Motor - Passenger (AEF) • S79P Front Side Door Window Switch - Passenger (AED/AEF) • S79RR Rear Side Door Window Switch - Right
F2	LF LR WINDOW MTR	F2DR	30A	• M74D Front Side Door Window Regulator Motor - Driver • S79LR Rear Side Door Window Switch - Left
F3	NOT USED	F3DR	—	• Not Used
F4	ELM 2	F4DR	15A	• K219 Lighting Control Module

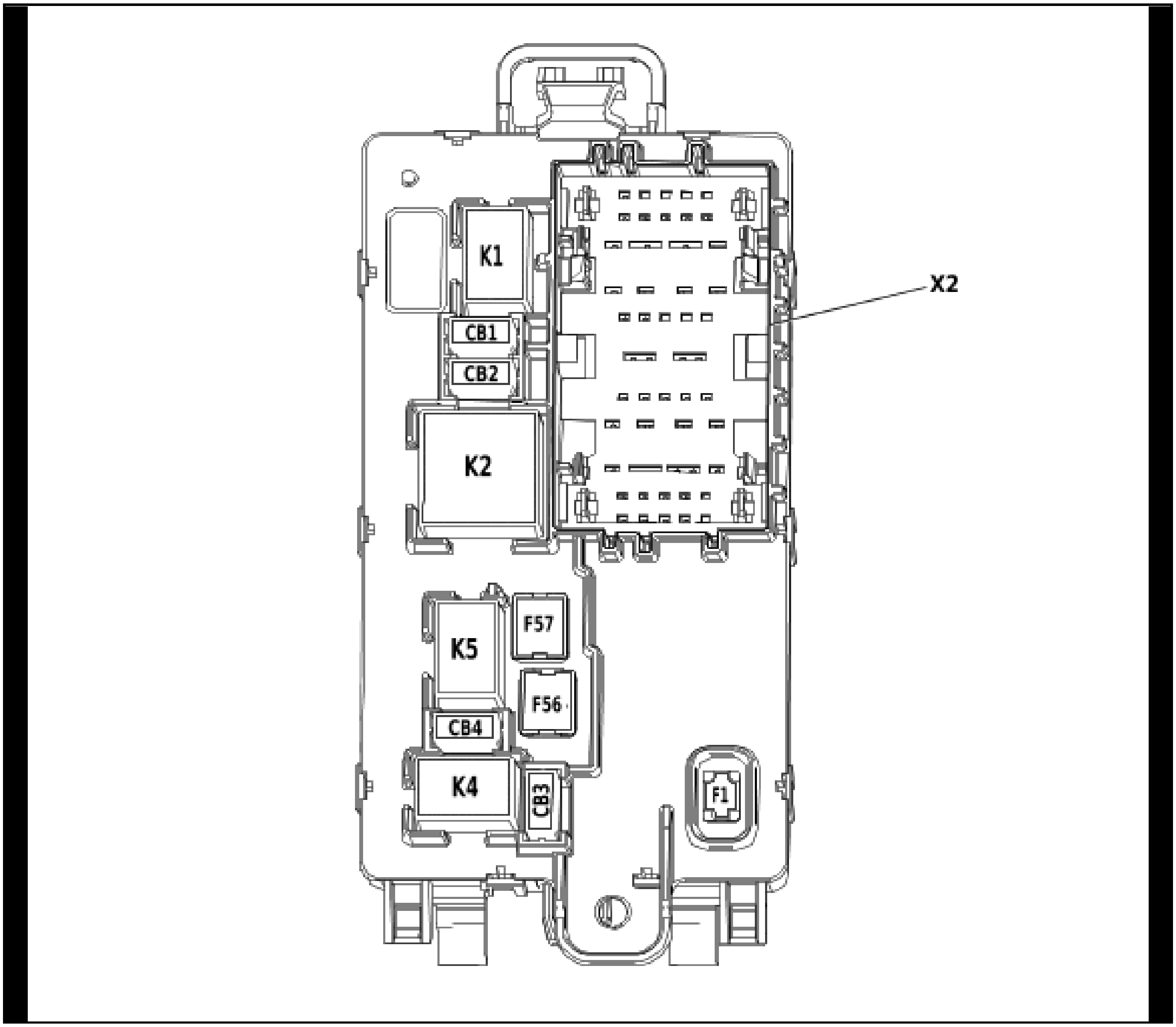
Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
F5	ELM 2	F5DR	10A	• K219 Lighting Control Module
F6	FRT BLWR	F6DR	40A	• M8 Blower Motor
F8	LF WINDOW SWITCH	F8DR	15A	• S79D Front Side Door Window Control Switch - Driver • S32R Rear Seat Heater Switch (KA6)
F10	STR TILT/UVM	F10DR	15A	• K219 Lighting Control Module • K56U Special Purpose Vehicle Control Module
F11	VPM/OHC CAM-ERA	F11DR	10A	• A103 Roof Console • B174W Front View Camera - Windshield (UGN/UHY) • K157 Video Processing Module (UV2)
F12	CGM/TCP/COL LCK/DMS	F12DR	10A	• K56 Serial Data Gateway Module • K60 Column Lock Module • K73 Telematic Control Module (UE1)
F14	NOT USED	F14DR	—	• Not Used
F17	STR WHL CNTRL	F17DR	2A	• S70L Cruise Control Switch (KI3) • S70R Radio Control Switch - Steering Wheel (KI3)
F18	NOT USED	F18DR	—	• Not Used
F19	NOT USED	F19DR	—	• Not Used
F20	NOT USED	F20DR	—	• Not Used
F21	NOT USED	F21DR	—	• Not Used
F22	HTD WHL	F22DR	7.5A	• K32 Steering Wheel Heating Control Module (KI3)
F23	NOT USED	F23DR	—	• Not Used
F24	NOT USED	F24DR	—	• Not Used
F25	SPOT LAMP LT/RT	F25DR	15A	• Not Used
F26	SEO/USB CHARGE	F26DR	10A	• X92CD Dual Charge Only Receptacle - Floor Console Rear (D07+UBI) • X92FSR Dual Charge Only Receptacle - Front Center Seat Rear Cover (AZ3+UBI)
F27	APO/RAP	F27DR	50A	• Not Used
F28	APO/BATT	F28DR	50A	• Not Used
F30	SDM/AOS	F30DR	10A	• K85P Restraints Occupant Classification System Module - Passenger • P16 Instrument Panel Cluster Control Module • P29 Head-Up Display • A22 Radio Control • A26 Heater and Air Conditioning User Interface Control - Front • B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor
F31	BCM 3	F31DR	20A	• K9 Body Control Module
F32	RFA WCM AUX JACK/CSM AUX JACK/TBCS	F32DR	15A	• A11 Radio (IOK) • S76 Trailer Brake Control Switch • T22 Wireless Accessory Charging Module (K4C) • X83B Audio/Video Receptacle (D07) • X92IP USB 2 Port Receptacle - Instrument Panel (d07) • X92CF USB 2 Port Receptacle - Floor Console Front (UBD)
F33	BCM 4	F33DR	30A	• K9 Body Control Module

Usage Table (cont'd)

No.	Device Label Name	Device Assigned Name	Rating	Description
F34	NOT USED	F34DR	—	• Not Used
F40	NOT USED	F40DR	—	• Not Used
F41	NOT USED	F41DR	—	• Not Used
F42	EPBS	F42DR	10A	• S91 Parking Brake Control Switch
F43	NOT USED	F43DR	—	• Not Used
F44	SIB	F44DR	10A	• Not Used
F45	RADIO LO	F45DR	15A	• A11 Radio (IOR)
F46	NOT USED	F46DR	—	• Not Used

X51R Instrument Panel Wiring Harness Junction Block - Right Bottom View



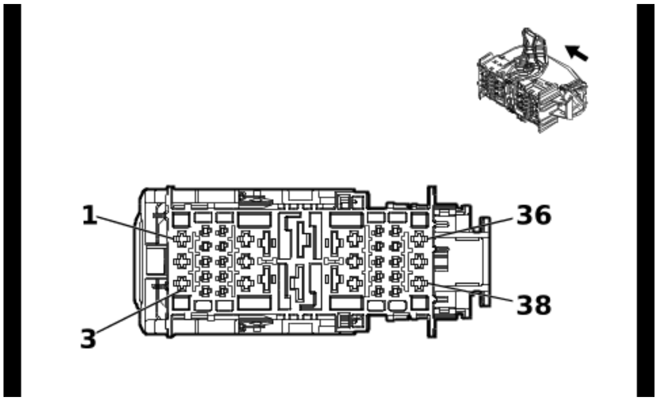
6094373

Usage Table

No.	Device Label Name	Device Assigned Name	Rating	Description
Circuit Breakers				
CB1	APO 1	CB1DR	15A	• X80G Accessory Power Receptacle - Instrument Panel (KC5)
CB2	NOT USED	—	—	• Not Used
Fuses				
F47	NOT USED	F47DR	—	• Not Used
F48	TCM	F48DR	20A	• K71 Transmission Control Module
F49	BCM 1	F49DR	15A	• K9 Body Control Module
F50	NOT USED	F50DR	—	• Not Used
F51	BATT 1	F51DR	40A	• Not Used
F52	BATT 2	F52DR	40A	• Not Used
F53	NOT USED	F53DR	—	• Not Used
F54	SUNROOF	F54DR	40A	• K61 Sunroof Control Module (CF5)
F55	DRVR PWR SEAT	F55DR	30A	• K40D Driver Seat Adjuster Memory Module (A45) • S64D Front Seat Adjuster Switch - Driver (-A45)
F56	DC/DC CONVERTER BATT 1	F56DR	40A	• Not Used
F57	DC/DC CONVERTER BATT 2	F57DR	40A	• Not Used
F58	NOT USED	F58DR	—	• Not Used
F59	NOT USED	F59DR	—	• Not Used
Relays				
K1	NOT USED	—	—	• Not Used
K2	RAP/ACCY 1	KR76 Accessory Time Delay Cutoff Relay	—	• CB1DR • F26DR
K4	NOT USED	—	—	• Not Used
K5	NOT USED	—	—	• Not Used

X51R Instrument Panel Wiring Harness Junction Block - Right X1

FIGURESIO=6217882 Owner=Owner, Schematics LMD=26-Jan-2023



5402140

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35264615
Service Connector: 84941450
Description: 38-Way F 1.5, 2.8, 6.3 MCP, 9.5 MCON-LL Series(BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19332366	J-35616-35 (VT)	J-38125-212
II	19371175	J-35616-2A (GY)	EL-38125-560A
III	84764079	J-35616-44 (YE)	J-38125-11A
IV	Not required	J-35616-22 (RD)	No Tool Required

X51R Instrument Panel Wiring Harness Junction Block - Right X1

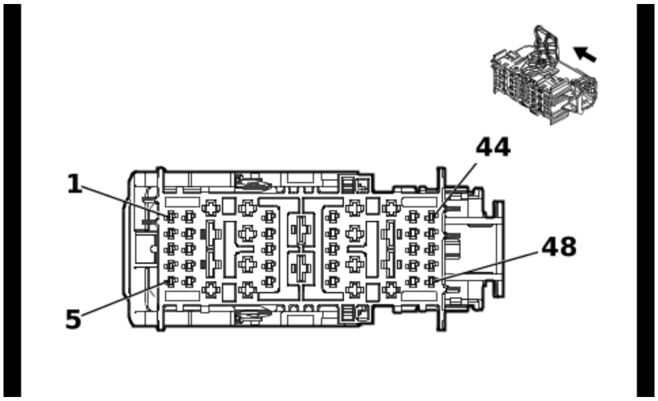
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	1.5	RD / GN	1840	Battery Positive Voltage	I	—
4	0.75	RD / VT	2640	Battery Positive Voltage	II	—
5	0.5	RD / GN	4440	Battery Positive Voltage	II	—
6	0.35	VT	4701	Retained Accessory Power Control	II	—
7 - 13	—	—	—	Not Occupied	—	—
14	0.5	RD / VT	1640	Battery Positive Voltage	I	—
15 - 18	—	—	—	Not Occupied	—	—
19	5	RD / YE	1442	Battery Positive Voltage	III	—
20	10	RD / WH	342	Battery Positive Voltage	IV	—
21 - 22	—	—	—	Not Occupied	—	—
23	2.5	RD / GY	4840	Battery Positive Voltage	I	—
24	2.5	RD / BN	4240	Battery Positive Voltage	I	—
25	2.5	RD / BU	3240	Battery Positive Voltage	I	—
26 - 29	—	—	—	Not Occupied	—	—
30	0.5	RD / BU	1240	Battery Positive Voltage	II	—
31 - 35	—	—	—	Not Occupied	—	—

X51R Instrument Panel Wiring Harness Junction Block - Right X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
36	2.5	RD / YE	5040	Battery Positive Voltage	I	—
37	2.5	RD / GY	3540	Battery Positive Voltage	I	—
38	—	—	—	Not Occupied	—	—

X51R Instrument Panel Wiring Harness Junction Block - Right X2

FIGURESIO=6217883 Owner=Owner, Schematics LMD=26-Jan-2023



5403539

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35264616
Service Connector: 19371180
Description: 48-Way F 1.5, 2.8, 6.3 CTS Series(GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19369711	J-35616-14 (GN)	EL-38125-560A
II	84764078	J-35616-42 (RD)	J-38125-215A
III	84779405	J-35616-35 (VT)	J-38125-215A

X51R Instrument Panel Wiring Harness Junction Block - Right X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	1050	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	GY / GN	4083	Retained Accessory Power Relay 2 Coil Control	I	—
4 - 7	—	—	—	Not Occupied	—	—
8	0.5	RD / GN	7740	Battery Positive Voltage	I	—
9	0.5	RD / YE	240	Battery Positive Voltage	I	—
10 - 13	—	—	—	Not Occupied	—	—
14	0.5	RD / YE	3040	Battery Positive Voltage	III	—
15	0.5	RD / BN	10040	Battery Positive Voltage	III	—
16	0.75	RD / VT	4640	Battery Positive Voltage	III	—
17	—	—	—	Not Occupied	—	—
18	0.35	RD / VT	3340	Battery Positive Voltage	III	—
19 - 23	—	—	—	Not Occupied	—	—
24	4	RD / GY	1740	Battery Positive Voltage	II	—
25	2.5	RD / BU	4540	Battery Positive Voltage	II	—
26	—	—	—	Not Occupied	—	—
27	0.5	RD / YE	2340	Battery Positive Voltage	I	—
28	0.5	RD / WH	1340	Battery Positive Voltage	I	—

X51R Instrument Panel Wiring Harness Junction Block - Right X2 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
29 - 30	—	—	—	Not Occupied	—	—
31	1.5	VT	1001	Retained Accessory Power Ignition Voltage	III	—
32	2	RD / BU	2540	Battery Positive Voltage	III	—
33	0.5	RD / VT	7140	Battery Positive Voltage	III	—
34	1	RD / GY	2140	Battery Positive Voltage	III	—
35	0.5	RD / GN	1540	Battery Positive Voltage	III	—
36	—	—	—	Not Occupied	—	—
37	1	RD / GY	2840	Battery Positive Voltage	II	—
38 - 40	—	—	—	Not Occupied	—	—
41	0.35	RD / GN	5140	Battery Positive Voltage	I	—
42	0.35	RD / YE	4340	Battery Positive Voltage	I	—
43 - 44	—	—	—	Not Occupied	—	—
45	0.5	RD / WH	2740	Battery Positive Voltage	I	—
46 - 48	—	—	—	Not Occupied	—	—

X55SP Wiring Harness Fuse Holder - Snow Plow

—

Connector Part Information

Harness Type: Accessory Wiring Harness
OEM Connector: 13788151
Service Connector: Service by Harness - See Part Catalog
Description: Fuse Holder

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

X55SP Wiring Harness Fuse Holder - Snow Plow

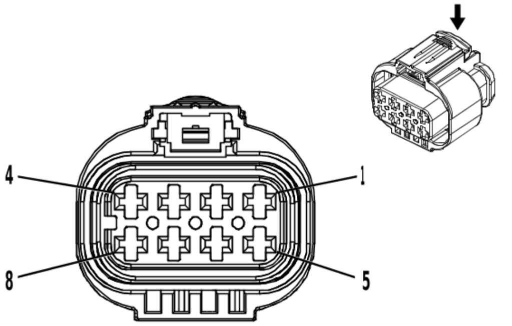
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	OG	9026	Snow Plow Relay Supply	I	—
B	1	OG	9028	Snow Plow Relay Supply	I	—

Component Connector End Views

Object-ID=6217889 Owner=Owner, Schematics LMD=10-Feb-2023 LMB=Kalb, William

A7 Fuel Tank Fuel Pump Module (N2L)

FIGURESIO=6217328 Owner=Owner, Schematics LMD=26-Jan-2023



3749582

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33180742
Service Connector: 19354078
Description: 8-Way F 2.8 Series, Sealed(L-GY)

Terminal Part Information

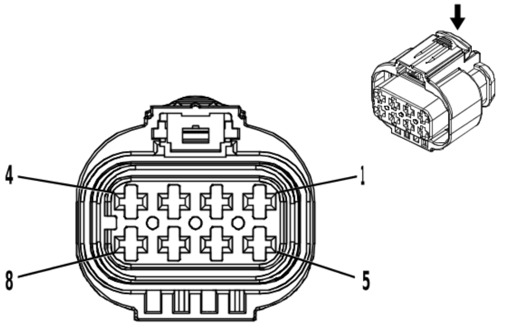
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A7 Fuel Tank Fuel Pump Module (N2L)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	—
2	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	I	—
3	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	I	—
4	0.5	WH	7444	Fuel Pump Assembly Shield Ground	I	—
5	0.5	BU / GN	1936	Primary Fuel Level Sensor Signal	I	—
6	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	I	—
7 - 8	—	—	—	Not Occupied	—	—

A7 Fuel Tank Fuel Pump Module (N2M)

FIGURESIO=6217329 Owner=Owner, Schematics LMD=26-Jan-2023



3749582

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33180742
Service Connector: 19354078
Description: 8-Way F 2.8 Series, Sealed(L-GY)

Terminal Part Information

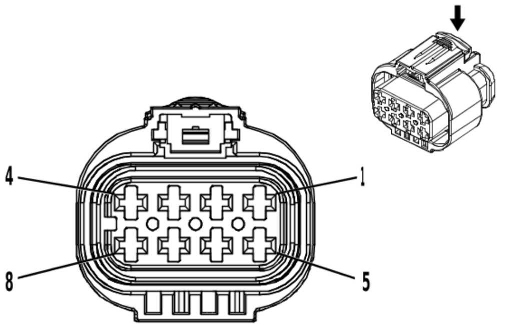
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A7 Fuel Tank Fuel Pump Module (N2M)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	—
2	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	I	—
3	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	I	—
4	0.5	WH	7444	Fuel Pump Assembly Shield Ground	I	—
5	0.75 0.5	BU / GN BU / GN	1936 1936	Primary Fuel Level Sensor Signal Primary Fuel Level Sensor Signal	I I	L5P L8T
6	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	I	—
7 - 8	—	—	—	Not Occupied	—	—

A7 Fuel Tank Fuel Pump Module (N2N)

FIGURESIO=6217330 Owner=Owner, Schematics LMD=26-Jan-2023



3749582

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33180742
Service Connector: 19354078
Description: 8-Way F 2.8 Series, Sealed(L-GY)

Terminal Part Information

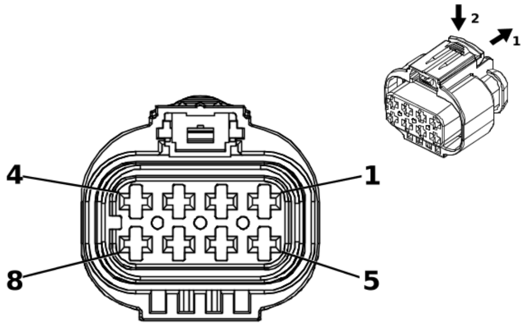
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A7 Fuel Tank Fuel Pump Module (N2N)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	—
2	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	I	—
3	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	I	—
4	0.5	WH	7444	Fuel Pump Assembly Shield Ground	I	—
5	0.5	BU / GN	1936	Primary Fuel Level Sensor Signal	I	—
6	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	I	—
7 - 8	—	—	—	Not Occupied	—	—

A7AX Fuel Tank Fuel Pump Module - Auxiliary (L5P)

FIGURESIO=6217331 Owner=Owner, Schematics
LMD=26-Jan-2023



3749581

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33180017
Service Connector: 19355165
Description: 8-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

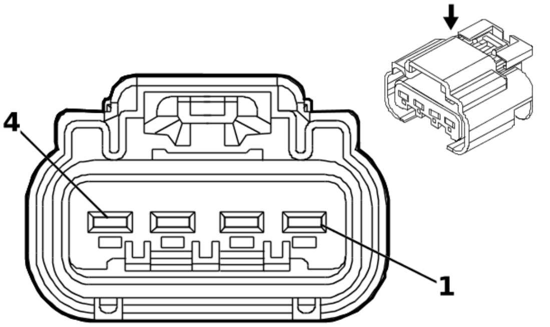
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A7AX Fuel Tank Fuel Pump Module - Auxiliary (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 4	—	—	—	Not Occupied	—	—
5	0.5	BU / WH	1937	Secondary Fuel Level Sensor Signal	I	—
6	0.5	BK / BU	6282	Fuel Level Sensor 2 Low Reference	I	—
7 - 8	—	—	—	Not Occupied	—	—

A7AX Fuel Tank Fuel Pump Module - Auxiliary (L8T)

FIGURESIO=6217332 Owner=Owner, Schematics
LMD=26-Jan-2023



5199377

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13843236
Service Connector: 84769204
Description: 4-Way F 280 GT Series, Sealed(NA)

Terminal Part Information

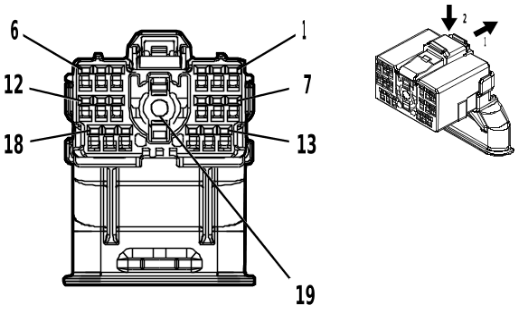
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A7AX Fuel Tank Fuel Pump Module - Auxiliary (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BU / GN	2120	Secondary Fuel Pump Control	I	—
2	1	BK / GN	1580	Fuel Pump Low Reference	I	—
3	0.5	BU / WH	1937	Secondary Fuel Level Sensor Signal	I	—
4	0.5	BK / BU	6282	Fuel Level Sensor 2 Low Reference	I	—

A9A Outside Rearview Mirror - Driver X1

FIGURESIO=6217333 Owner=Owner, Schematics LMD=26-Jan-2023



4991775

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 35077331
Service Connector: Service by Harness - See Part Catalog
Description: 19-Way F 1.2 MCON, Coaxial Series(BK)

Terminal Part Information

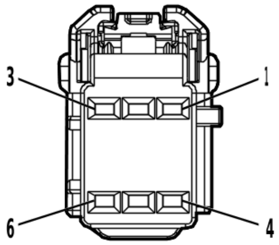
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	No Tool Required	No Tool Required

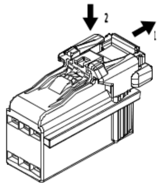
A9A Outside Rearview Mirror - Driver X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / BK	2790	Left Front Mirror Motor Right [+] Left [-] Control	I	—
2	0.5	VT / BU	2788	Left Front Mirror Motor Up [+] Down [-] Control	I	—
3	0.5	WH / GN	2786	Left Front Mirror Motor Fold In Control	I	—
4	0.5	GY / YE	1760	Left Side Object Detection LED Control	I	—
5	0.5	WH / GN	5966	Approach Lamp Control	I	—
6	0.5	BN / GN	4246	Identification Lamp Control	I	—
7	0.5	WH	606	Left Outside Rearview Mirror Heater Control	I	—
8	0.5	WH / GY	2114	Left Turn Signal Lamp Control 2	I	—
9	0.5	BK	1550	Ground	I	—
10	—	—	—	Not Occupied	—	—
11	0.35	YE / GY	2933	Task Lamp Control Left	I	—
12	0.5	BK / YE	1691	Automatic Day/Night Mirror Low Reference	I	—
13	0.5	BU / YE	7761	Backup Illumination Lamp Control	I	—
14	0.5	YE / BN	2789	Left Front Mirror Motor Common Control	I	—
15	0.5	GY / WH	2785	Left Front Mirror Motor Fold Out Control	I	—
16	—	—	—	Not Occupied	—	—
17	0.5	YE / WH	1690	Mirror Dimming Signal	I	—
18	—	—	—	Not Occupied	—	—
19	0	BK	4725	Left Sideview Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	II	—

A9A Outside Rearview Mirror - Driver X2

FIGURESIO=6217334 Owner=Owner, Schematics LMD=26-Jan-2023





4862126

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 35327305
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 1.2 Series(BK)

Terminal Part Information

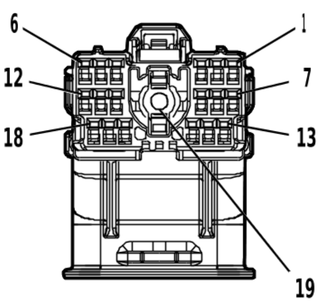
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

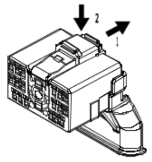
A9A Outside Rearview Mirror - Driver X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / YE	2792	Left Front Mirror Position Sensor Left [-] Right [+] Signal	I	—
2	0.5	VT / RD	2791	Left Front Mirror Position Sensor High Reference	I	—
3	0.5	GY / BN	2787	Left Front Mirror Position Sensor Up [+] Down [-] Signal	I	—
4	0.5	BK / BN	673	Left Outside Rearview Mirror Position Sensor Low Reference	I	—
5	0.5	BN	10201	Left Front Mirror Motor Extend Control	I	—
6	0.5	WH / BK	10202	Left Front Mirror Motor Retract Control	I	—

A9B Outside Rearview Mirror - Passenger X1

FIGURESIO=6217335 Owner=Owner, Schematics LMD=26-Jan-2023





4991775

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 35077331
Service Connector: Service by Harness - See Part Catalog
Description: 19-Way F 1.2 MCON, Coaxial Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	No Tool Required	No Tool Required

A9B Outside Rearview Mirror - Passenger X1

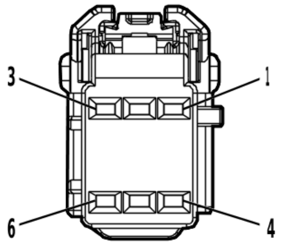
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / BK	2798	Right Front Mirror Motor Right [+] Left [-] Control	I	—
2	0.5	YE / VT	2796	Right Front Mirror Motor Up [+] Down [-] Control	I	—
3	0.5	BU / GY	2794	Right Front Mirror Motor Fold In Control	I	—
4	0.5	GY	1761	Right Side Object Detection LED Control	I	—
5	0.5	WH / GN	5966	Approach Lamp Control	I	—
6	0.5	BN / GN	4246	Identification Lamp Control	I	—
7	0.5	BN / VT	607	Right Outside Rearview Mirror Heater Control	I	—
8	0.5	GN / GY	2115	Right Turn Signal Lamp Control 2	I	—
9	0.75	BK	1350	Ground	I	—
10	0.5	BU / GY	636	Ambient Air Temperature Sensor Signal	I	—
11	0.35	YE / WH	2934	Task Lamp Control Right	I	—
12	0.5	BK / YE	1691	Automatic Day/Night Mirror Low Reference	I	—
13	0.5	BU / YE	7761	Backup Illumination Lamp Control	I	—
14	0.5	WH	2797	Right Front Mirror Motor Common Control	I	—
15	0.5	YE / WH	2793	Right Front Mirror Motor Fold Out Control	I	—
16	—	—	—	Not Occupied	—	—
17	0.5	YE / WH	1690	Mirror Dimming Signal	I	—
18	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—

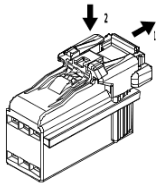
A9B Outside Rearview Mirror - Passenger X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
19	0	BK	4724	Right Sideview Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	II	—

A9B Outside Rearview Mirror - Passenger X2

FIGURESIO=6217336 Owner=Owner, Schematics LMD=26-Jan-2023





4862126

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 35327305
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 1.2 Series(BK)

Terminal Part Information

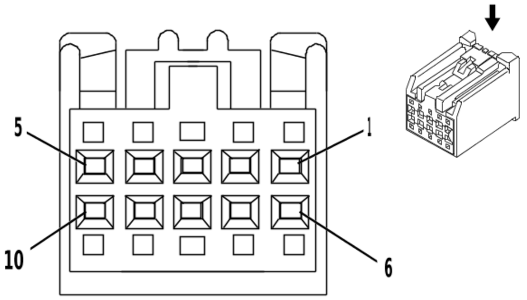
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

A9B Outside Rearview Mirror - Passenger X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / WH	2800	Right Front Mirror Position Sensor Left [-] Right [+] Signal	I	—
2	0.5	YE / RD	2799	Right Front Mirror Position Sensor High Reference	I	—
3	0.5	BU / YE	2795	Right Front Mirror Position Sensor Up [+] Down [-] Signal	I	—
4	0.5	BK / GN	675	Right Outside Rearview Mirror Position Sensor Low Reference	I	—
5	0.5	BN / GN	10203	Right Front Mirror Motor Extend Control	I	—
6	0.5	VT	10204	Right Front Mirror Motor Retract Control	I	—

A10 Inside Rearview Mirror X1

FIGURESIO=6257889 Owner=Owner, Schematics LMD=26-Jan-2023



2180211

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 13815336
Service Connector: 13577390
Description: 10-Way F 0.64 Kaizen Series(BK)

Terminal Part Information

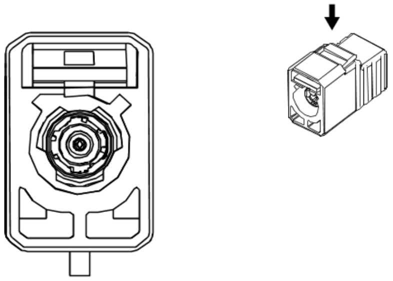
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13575742	J-35616-64B (L-BU)	J-38125-215A

A10 Inside Rearview Mirror X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN / WH	24	Backup Lamp Control	I	—
2	0.35 0.5	VT / BK VT / BK	339 339	Run/Crank Ignition 1 Voltage Run/Crank Ignition 1 Voltage	I I	UEU- UV6 UVO
3 - 4	—	—	—	Not Occupied	—	—
5	0.5	BK / WH	851	Signal Ground	I	—
6	0.35	GY / YE	6972	Rearview Camera Signal [+]	I	—
7	0.35	WH / BU	6973	Rearview Camera Signal [-]	I	—
8	0.35	BK / YE	1691	Automatic Day/Night Mirror Low Reference	I	—
9	0.35	YE / WH	1690	Mirror Dimming Signal	I	—
10	—	—	—	Not Occupied	—	—

A10 Inside Rearview Mirror X2 (DRZ)

FIGURESIO=6257891 Owner=Owner, Schematics LMD=26-Jan-2023



2893647

Connector Part Information

Harness Type: Radio Antenna Cable Extension Cable COAX
OEM Connector: 13581683
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BK)

Terminal Part Information

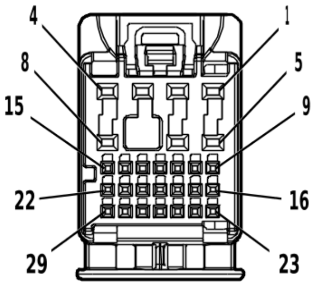
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

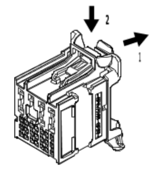
A10 Inside Rearview Mirror X2 (DRZ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Full Display Mirror Rear Camera Coaxial Video Signal	I	—

A11 Radio X1 (IOR)

FIGURESIO=6217338 Owner=Owner, Schematics LMD=26-Jan-2023





4584346

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35364128
Service Connector: 13534972
Description: 29-Way F 0.5 NANO, 1.2 MCON Series(GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

A11 Radio X1 (IOR)

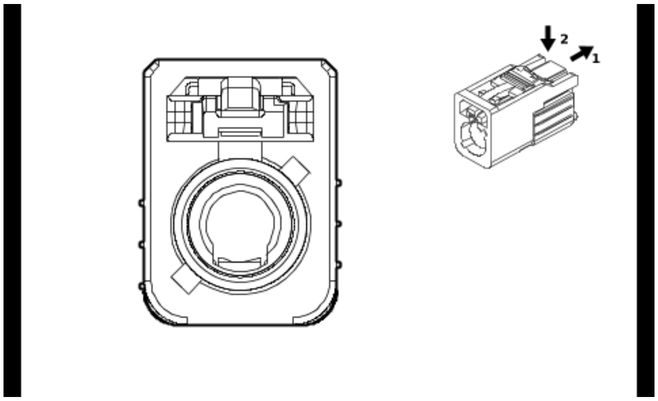
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD / GY	2840	Battery Positive Voltage	II	—
2	0.75	RD / GY	2840	Battery Positive Voltage	II	—
3	0.75	BK / WH	1051	Signal Ground	II	—
4	0.35	BU / RD	11246	Infotainment Display 5 Volt Reference	II	—
5	0.35	BK / WH	11252	Infotainment Display Low Reference	II	—
6	0.75	BK / WH	1051	Signal Ground	II	—
7	—	—	—	Not Occupied	—	—
8	0.75	GN / BK	116	Left Rear Speaker [-] Control	II	—
9	0.35	GY / BU	11247	Infotainment Display LCD Enable Signal	I	—
10	—	—	—	Not Occupied	—	—
11	0.35	GN / WH	24	Backup Lamp Control	I	—
12 - 14	—	—	—	Not Occupied	—	—
15	0.35	BU / GY	11244	Radio Switch Dimming Control	I	—
16	—	—	—	Not Occupied	—	—
17	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
18	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
19 - 20	—	—	—	Not Occupied	—	—
21	0.35	GY / VT	11249	Infotainment Display Backlight Enable Control	I	—
22	0.35	BU / GN	11248	Infotainment Display Backlight Dimming Control	I	—

A11 Radio X1 (IOR) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
23	—	—	—	Not Occupied	—	—
24	0.35	BN / WH	11233	Radio Switch Power ON/OFF Switch Signal	I	—
25	0.35	VT / WH	11245	Radio Switch Buttons Signal	I	—
26	0.35	BU	11235	Radio Switch Volume Up Signal	I	—
27	0.35	GY / BN	11234	Radio Switch Volume Down Signal	I	—
28 - 29	—	—	—	Not Occupied	—	—

A11 Radio X2 (IOK)

FIGURESIO=6217339 Owner=Owner, Schematics LMD=26-Jan-2023



5793980

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340311
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BU)

Terminal Part Information

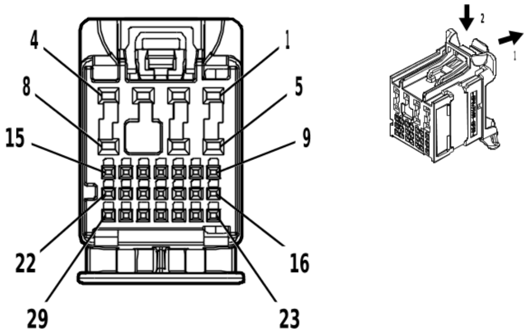
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X2 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	(GPS only) Coaxial Antenna GPS Signal	I	—

A11 Radio X2 (IOR)

FIGURESIO=6217340 Owner=Owner, Schematics LMD=26-Jan-2023



4584398

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35364129
Service Connector: 13534973
Description: 29-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(GY)

Terminal Part Information

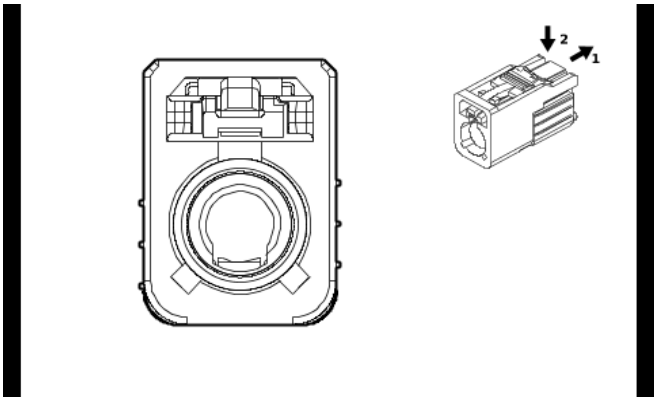
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

A11 Radio X2 (IOR)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN	199	Left Rear Speaker [+] Control	II	—
2	0.75	BU	201	Left Front Speaker 1 [+] Control	II	—
3	0.75	YE	200	Right Front Speaker 1 [+] Control	II	—
4	0.75	BU / BK	115	Right Rear Speaker [-] Control	II	—
5	0.75	BN / BU	118	Left Front Speaker [-] Control 1	II	—
6	0.75	YE / BK	117	Right Front Speaker [-] Control 1	II	—
7	—	—	—	Not Occupied	—	—
8	0.75	WH	46	Right Rear Speaker [+] Control	II	—
9	0.35 0.35	BK / BN BK / GY	654 5152	Cellular Telephone Microphone Low Reference Voice Recognition Audio [-] Control	I I	- GF2- GF5- GFF+ IOR- UE1 IOR+ UE1
10	0.35 0.35	BU GY / YE	655 5149	Cellular Telephone Microphone Signal Voice Recognition Audio Signal	I I	- GF2- GF5- GFF+ IOR- UE1 IOR+ UE1
11 - 29	—	—	—	Not Occupied	—	—

A11 Radio X3 (IOK)

FIGURESIO=6217341 Owner=Owner, Schematics LMD=26-Jan-2023



5794617

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340318
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(CU)

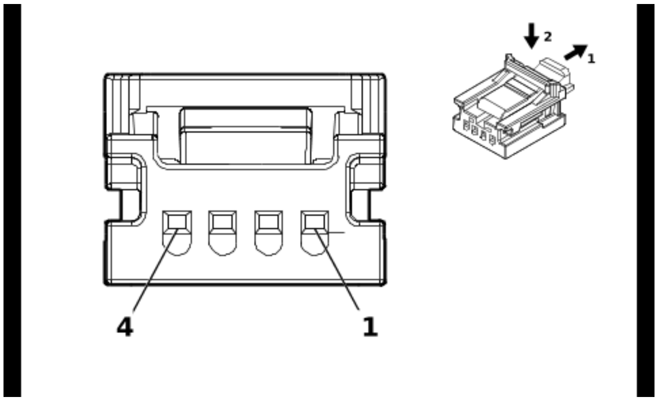
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X3 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	(XM +/-HD) Coaxial Antenna XM Signal	I	—

A11 Radio X3 (IOR) FIGURESIO=6217342 Owner=Owner, Schematics LMD=26-Jan-2023



5493278

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 33228283
Service Connector: Service by Cable - See Part Catalog
Description: 4-Way F Mini 50 Series(BK)

Terminal Part Information

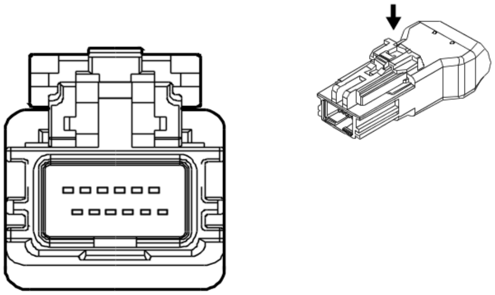
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

A11 Radio X3 (IOR)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	YE	4758	Ethernet Bus 2 [+]	I	—
3	0.35	BU	4757	Ethernet Bus 2 [-]	I	—
4	—	—	—	Not Occupied	—	—

A11 Radio X4 (IOR)

FIGURESIO=6217343 Owner=Owner, Schematics LMD=26-Jan-2023



4527210

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 33358813
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 12-Way M 2.0 HSAL-2 Series(BK)

Terminal Part Information

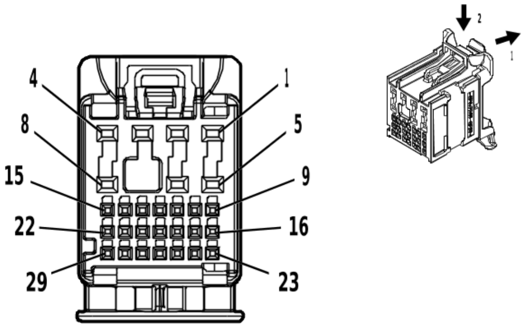
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X4 (IOR)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	4844	Radio LVDS (Low Voltage Differential Signaling) Low Reference	I	—
2	—	—	4845	Radio LVDS (Low Voltage Differential Signaling) Signal [+]	I	—
3	—	—	4846	Radio LVDS (Low Voltage Differential Signaling) Signal [-]	I	—
4 - 6	—	—	—	Not Occupied	—	—
7	—	—	7899	Auxiliary Audio/Video Jack USB Serial Data Supply Voltage	I	—
8	—	—	—	Not Occupied	—	—
9	—	—	7896	Auxiliary Audio/Video Jack USB [+] Serial Data	I	—
10	—	—	7897	Auxiliary Audio/Video Jack USB [-] Serial Data	I	—
11	—	—	—	Not Occupied	—	—
12	—	—	7898	Auxiliary Audio/Video Jack USB Low Reference	I	—

A11 Radio X5 (IOK)

FIGURESIO=6217344 Owner=Owner, Schematics LMD=26-Jan-2023



4496253

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35364134
Service Connector: 13534974
Description: 29-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(BK)

Terminal Part Information

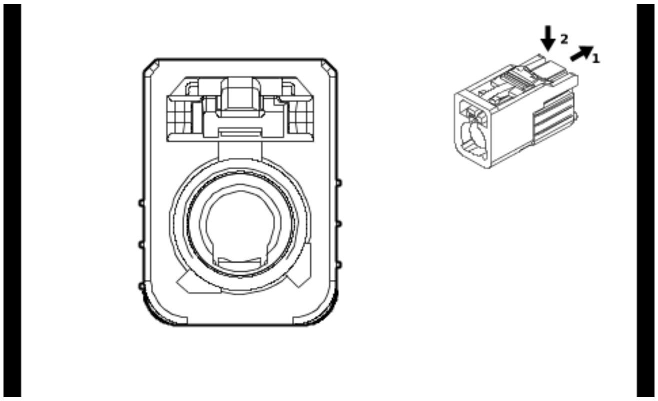
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

A11 Radio X5 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / YE	2340	Battery Positive Voltage	II	—
2	—	—	—	Not Occupied	—	—
3	0.75	BK / WH	1051	Signal Ground	II	—
4 - 7	—	—	—	Not Occupied	—	—
8	0.75	GN / BK	116	Left Rear Speaker [-] Control	II	—
9	0.35 0.35	BU GY / YE	655 5149	Cellular Telephone Microphone Signal Voice Recognition Audio Signal	I I	- GF2- GF5- GFF+ IOR-UE1 IOK+ UE1
10	0.35 0.35	BK / BN BK / GY	654 5152	Cellular Telephone Microphone Low Reference Voice Recognition Audio [-] Control	I I	- GF2- GF5- GFF+ IOR-UE1 IOK+ UE1
11	0.35	VT / YE	7043	Microphone [+] Signal	I	—
12	0.35	BU / BK	7044	Microphone [-] Signal	I	—
13 - 29	—	—	—	Not Occupied	—	—

A11 Radio X5 (IOR)

FIGURESIO=6217345 Owner=Owner, Schematics LMD=26-Jan-2023



5191842

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340320
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(OG)

Terminal Part Information

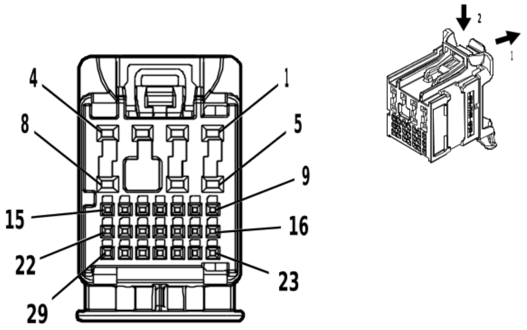
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X5 (IOR)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Rear Vision Camera Coaxial Video Signal	I	—

A11 Radio X6 (IOK)

FIGURESIO=6217346 Owner=Owner, Schematics LMD=26-Jan-2023



4578560

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35364137
Service Connector: 13534971
Description: 29-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(GY)

Terminal Part Information

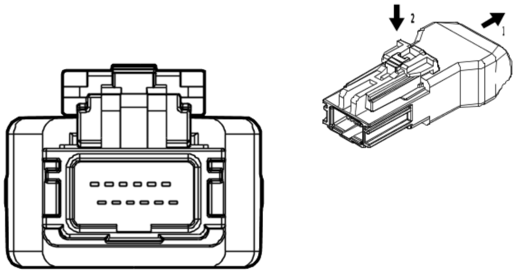
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

A11 Radio X6 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN	199	Left Rear Speaker [+] Control	II	—
2	0.75	BU	201	Left Front Speaker 1 [+] Control	II	—
3	0.75	YE / BK	117	Right Front Speaker [-] Control 1	II	—
4	0.75	BU / BK	115	Right Rear Speaker [-] Control	II	—
5	0.75	BN / BU	118	Left Front Speaker [-] Control 1	II	—
6	0.75	YE	200	Right Front Speaker 1 [+] Control	II	—
7	—	—	—	Not Occupied	—	—
8	0.75	WH	46	Right Rear Speaker [+] Control	II	—
9	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
10	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
11 - 12	—	—	—	Not Occupied	—	—
13	0.35	GN / WH	24	Backup Lamp Control	I	—
14 - 29	—	—	—	Not Occupied	—	—

A11 Radio X7 (IOK)

FIGURESIO=6217347 Owner=Owner, Schematics LMD=26-Jan-2023



4584321

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 13511515
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 12-Way M 2.0 HSAL-2 Series(GY)

Terminal Part Information

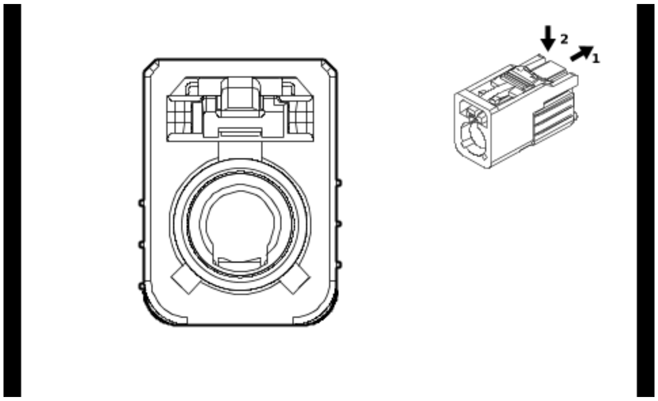
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X7 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	7853	Center Stack LVDS (Low Voltage Differential Signaling) Low Reference	I	—
2	—	—	7854	Center Stack LVDS (Low Voltage Differential Signaling) Signal [+]	I	—
3	—	—	7855	Center Stack LVDS (Low Voltage Differential Signaling) Signal [-]	I	—
4	—	—	7847	Center Stack LVDS (Low Voltage Differential Signaling) 2 Low Reference	I	—
5	—	—	7848	Center Stack LVDS (Low Voltage Differential Signaling) 2 Signal [+]	I	—
6	—	—	7849	Center Stack LVDS (Low Voltage Differential Signaling) 2 Signal [-]	I	—
7 - 12	—	—	—	Not Occupied	—	—

A11 Radio X7 (IOR)

FIGURESIO=6217348 Owner=Owner, Schematics LMD=26-Jan-2023



5794617

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340318
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(CU)

Terminal Part Information

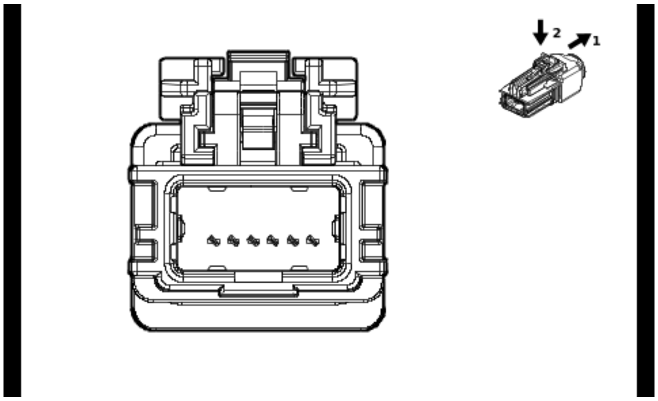
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X7 (IOR)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	(XM +/-HD) Coaxial Antenna XM Signal	I	—

A11 Radio X8 (IOK)

FIGURESIO=6217349 Owner=Owner, Schematics LMD=26-Jan-2023



5987912

Connector Part Information

Harness Type: Instrument Panel Wiring Harness USB
OEM Connector: 13545174
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 12-Way M 2.0 HSAL-2 Series(BK)

Terminal Part Information

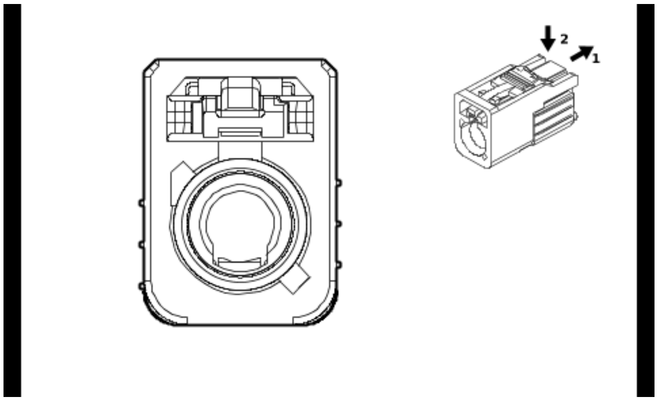
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X8 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	USB	—	USB Serial Data	I	—

A11 Radio X8 (IOR)

FIGURESIO=6217350 Owner=Owner, Schematics LMD=26-Jan-2023



5518456

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340317
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BG)

Terminal Part Information

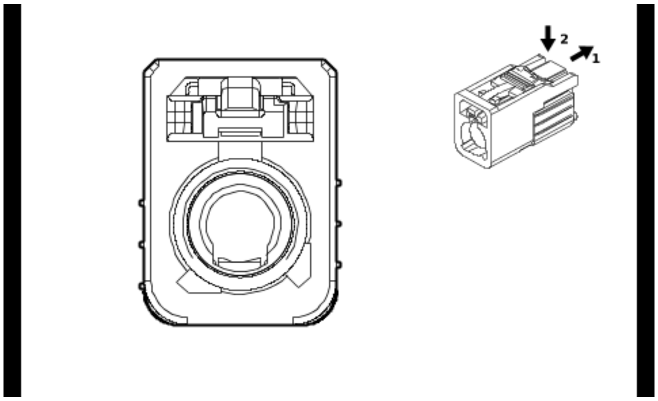
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X8 (IOR)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	WiFi Antenna Coaxial Signal	I	—

A11 Radio X9 (IOK)

FIGURESIO=6217351 Owner=Owner, Schematics LMD=26-Jan-2023



5191842

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340320
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(OG)

Terminal Part Information

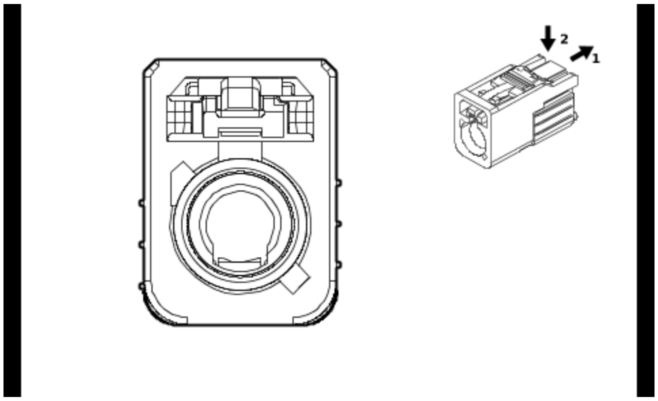
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X9 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Video Processing Module Coaxial Video Signal	I	—

A11 Radio X10 (IOK)

FIGURESIO=6217352 Owner=Owner, Schematics LMD=26-Jan-2023



5518456

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340317
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BG)

Terminal Part Information

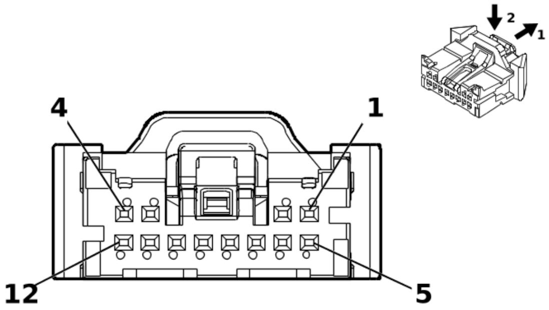
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A11 Radio X10 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	WiFi Antenna Coaxial Signal	I	—

A11 Radio X11 (IOK)

FIGURESIO=6217353 Owner=Owner, Schematics LMD=26-Jan-2023



5360826

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35068239
Service Connector: 13529935
Description: 12-Way F 050 CTS Series(BK)

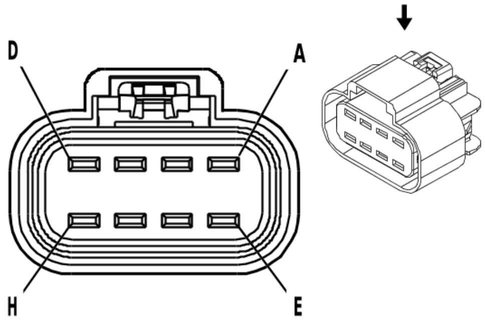
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Service by Cable	No Tool Required	No Tool Required

A11 Radio X11 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.35	YE	4758	Ethernet Bus 2 [+]	I	—
4	0.35	BU	4757	Ethernet Bus 2 [-]	I	—
5 - 7	—	—	—	Not Occupied	—	—
8	0.35	YE	7215	Ethernet Bus 6 [+]	I	—
9	0.35	GN	7214	Ethernet Bus 6 [-]	I	—
10	—	—	—	Not Occupied	—	—
11	0.35	BN	7211	Ethernet Bus 4 [+]	I	—
12	0.35	GY	7210	Ethernet Bus 4 [-]	I	—

A16 Transfer Case Four Wheel Drive Actuator (L5P&NQF) FIGURESIO=6217354 Owner=Owner, Schematics LMD=26-Jan-2023



646372

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 13538370
Service Connector: 19369184
Description: 8-Way F 280 GT Series, Sealed(BK)

Terminal Part Information

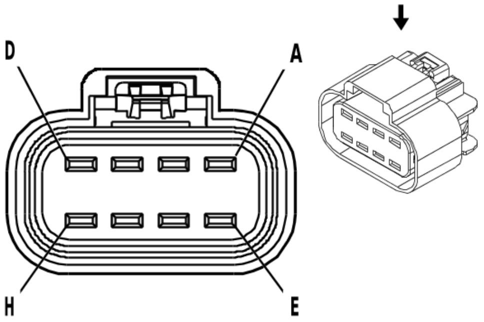
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A16 Transfer Case Four Wheel Drive Actuator (L5P&NQF)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	YE / GY	1552	Transfer Case Motor Clockwise Control	I	—
B	0.75	BU	8013	Transfer Case Lock Solenoid Control 2	I	—
C	0.75	YE / BN	1569	Transfer Case Lock Solenoid Valve Control	I	—
D	2.5	YE / VT	1553	Transfer Case Motor Counter Clockwise Control	I	—
E	0.5	YE	7474	Incremental Encoder Direction Signal	I	—
F	0.5	BU / GY	7473	Incremental Encoder Impulse Signal	I	—
G	0.5	WH / GN	7475	Incremental Encoder Sensor Voltage Reference	I	—
H	0.5	VT	7476	Incremental Encoder Sensor Low Reference	I	—

A16 Transfer Case Four Wheel Drive Actuator (L5P&NQH)

FIGURESIO=6217355 Owner=Owner, Schematics
LMD=26-Jan-2023



646372

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 13538370
Service Connector: 19369184
Description: 8-Way F 280 GT Series, Sealed(BK)

Terminal Part Information

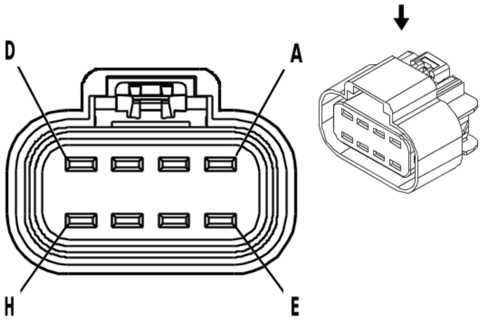
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A16 Transfer Case Four Wheel Drive Actuator (L5P&NQH)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	YE / GY	1552	Transfer Case Motor Clockwise Control	I	—
B	0.75	BU	8013	Transfer Case Lock Solenoid Control 2	I	—
C	0.75	YE / BN	1569	Transfer Case Lock Solenoid Valve Control	I	—
D	2.5	YE / VT	1553	Transfer Case Motor Counter Clockwise Control	I	—
E	0.5	YE	7474	Incremental Encoder Direction Signal	I	—
F	0.5	BU / GY	7473	Incremental Encoder Impulse Signal	I	—
G	0.5	WH / GN	7475	Incremental Encoder Sensor Voltage Reference	I	—
H	0.5	VT	7476	Incremental Encoder Sensor Low Reference	I	—

A16 Transfer Case Four Wheel Drive Actuator (L8T&NQF)

FIGURESIO=6217356 Owner=Owner, Schematics
LMD=26-Jan-2023



646372

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13538370
Service Connector: 19369184
Description: 8-Way F 280 GT Series, Sealed(BK)

Terminal Part Information

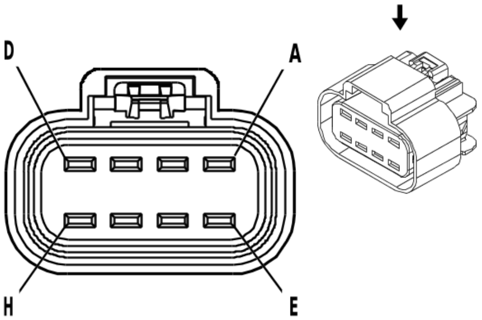
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A16 Transfer Case Four Wheel Drive Actuator (L8T&NQF)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	YE / GY	1552	Transfer Case Motor Clockwise Control	I	—
B	0.75	BU	8013	Transfer Case Lock Solenoid Control 2	I	—
C	0.75	YE / BN	1569	Transfer Case Lock Solenoid Valve Control	I	—
D	2.5	YE / VT	1553	Transfer Case Motor Counter Clockwise Control	I	—
E	0.5	YE	7474	Incremental Encoder Direction Signal	I	—
F	0.5	BU / GY	7473	Incremental Encoder Impulse Signal	I	—
G	0.5	WH / GN	7475	Incremental Encoder Sensor Voltage Reference	I	—
H	0.5	VT	7476	Incremental Encoder Sensor Low Reference	I	—

A16 Transfer Case Four Wheel Drive Actuator (L8T&NQH)

FIGURESIO=6217357 Owner=Owner, Schematics
LMD=26-Jan-2023



646372

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13538370
Service Connector: 19369184
Description: 8-Way F 280 GT Series, Sealed(BK)

Terminal Part Information

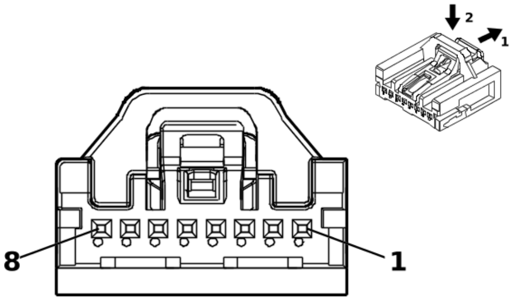
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

A16 Transfer Case Four Wheel Drive Actuator (L8T&NQH)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	YE / GY	1552	Transfer Case Motor Clockwise Control	I	—
B	0.75	BU	8013	Transfer Case Lock Solenoid Control 2	I	—
C	0.75	YE / BN	1569	Transfer Case Lock Solenoid Valve Control	I	—
D	2.5	YE / VT	1553	Transfer Case Motor Counter Clockwise Control	I	—
E	0.5	YE	7474	Incremental Encoder Direction Signal	I	—
F	0.5	BU / GY	7473	Incremental Encoder Impulse Signal	I	—
G	0.5	WH / GN	7475	Incremental Encoder Sensor Voltage Reference	I	—
H	0.5	VT	7476	Incremental Encoder Sensor Low Reference	I	—

A22 Radio Control X1 (IOK)

FIGURESIO=6217358 Owner=Owner, Schematics LMD=26-Jan-2023



5200269

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35068228
Service Connector: 84769201
Description: 8-Way F Mini 50 Series(BK)

Terminal Part Information

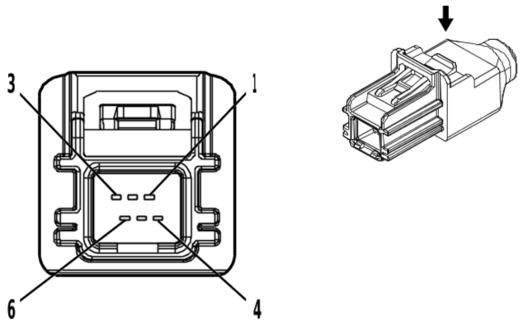
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

A22 Radio Control X1 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD / WH	1340	Battery Positive Voltage	I	—
2 - 7	—	—	—	Not Occupied	—	—
8	0.35	BK / WH	1051	Signal Ground	I	—

A22 Radio Control X2 (IOK)

FIGURESIO=6217359 Owner=Owner, Schematics LMD=26-Jan-2023



4806625

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 13522802
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 6-Way M HSAL-2 Series(BK)

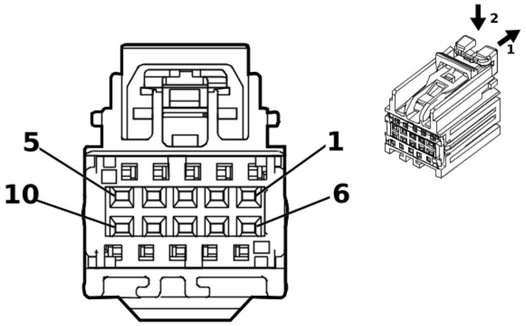
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

A22 Radio Control X2 (IOK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	7853	Center Stack LVDS (Low Voltage Differential Signaling) Low Reference	I	—
2	—	—	7854	Center Stack LVDS (Low Voltage Differential Signaling) Signal [+]	I	—
3	—	—	7855	Center Stack LVDS (Low Voltage Differential Signaling) Signal [-]	I	—
4	—	—	7848	Center Stack LVDS (Low Voltage Differential Signaling) 2 Signal [+]	I	—
5	—	—	7849	Center Stack LVDS (Low Voltage Differential Signaling) 2 Signal [-]	I	—
6	—	—	7847	Center Stack LVDS (Low Voltage Differential Signaling) 2 Low Reference	I	—

A23D Front Side Door Latch - Driver FIGURESIO=6217360 Owner=Owner, Schematics LMD=26-Jan-2023



4622549

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 33320811
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 0.64 Kaizen Series(GN)

Terminal Part Information

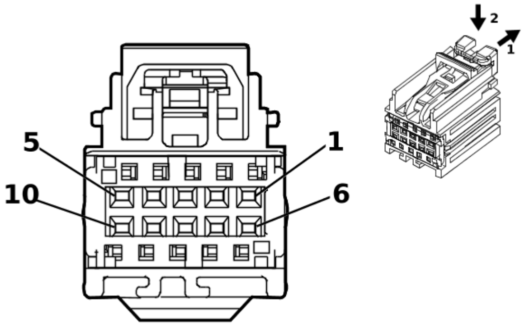
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

A23D Front Side Door Latch - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY	745	Left Front Door Ajar Switch Signal	I	—
2	0.5	VT / GY	126	Left Front Door Open Switch Signal	I	—
3	0.5	BK	1550	Ground	I	—
4	0.5	WH / VT	4258	Left Front Door Lock Status Signal	I	—
5 - 6	—	—	—	Not Occupied	—	—
7	0.75	GY	2681	Left Front Door Lock Actuator Lock Control	I	—
8	0.75	WH	2679	Lock Actuators Unlock Control 1	I	—
9 - 10	—	—	—	Not Occupied	—	—

A23LR Rear Side Door Latch - Left

FIGURESIO=6217361 Owner=Owner, Schematics LMD=26-Jan-2023



4622549

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Left
OEM Connector: 33320811
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 0.64 Kaizen Series(GN)

Terminal Part Information

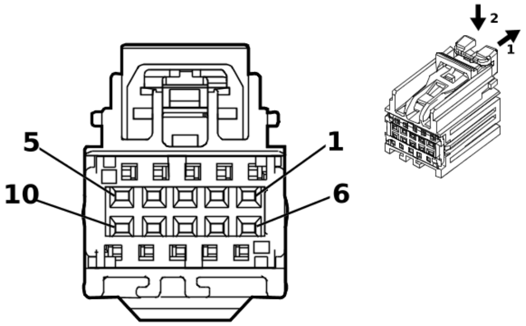
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

A23LR Rear Side Door Latch - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY	747	Left Rear Door Ajar Switch Signal	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	BK	1550	Ground	I	—
4 - 6	—	—	—	Not Occupied	—	—
7	0.75	BU / YE	1091	Left Rear Door Lock Actuator Lock Control	I	—
8	0.75	WH	2679	Lock Actuators Unlock Control 1	I	—
9 - 10	—	—	—	Not Occupied	—	—

A23P Front Side Door Latch - Passenger

FIGURESIO=6217362 Owner=Owner, Schematics LMD=26-Jan-2023



4622549

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 33320811
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 0.64 Kaizen Series(GN)

Terminal Part Information

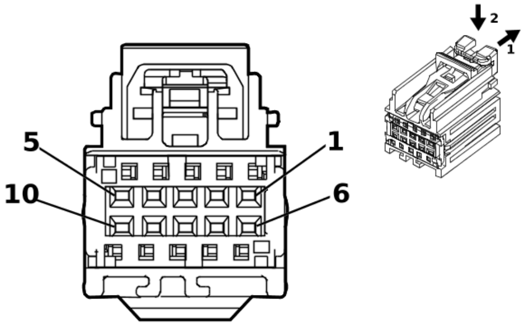
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

A23P Front Side Door Latch - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.5	BK	1350	Ground	I	—
4	—	—	—	Not Occupied	—	—
5	0.5	GY	746	Right Front Door Ajar Switch Signal	I	—
6 - 7	—	—	—	Not Occupied	—	—
8	0.75	GY / BK	2680	Lock Actuators Unlock Control 2	I	—
9	0.75	YE / GN	2682	Right Front Door Lock Actuator Lock Control	I	—
10	—	—	—	Not Occupied	—	—

A23RR Rear Side Door Latch - Right

FIGURESIO=6217363 Owner=Owner, Schematics LMD=26-Jan-2023



4622549

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Right
OEM Connector: 33320811
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 0.64 Kaizen Series(GN)

Terminal Part Information

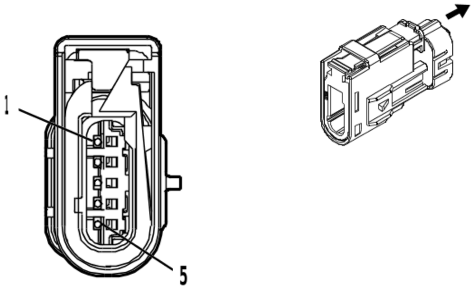
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

A23RR Rear Side Door Latch - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.5	BK	1350	Ground	I	—
4	—	—	—	Not Occupied	—	—
5	0.5	GY	748	Right Rear Door Ajar Switch Signal	I	—
6 - 7	—	—	—	Not Occupied	—	—
8	0.75	GY / BK	2680	Lock Actuators Unlock Control 2	I	—
9	0.75	VT / WH	1094	Right Rear Door Lock Actuator Lock Control	I	—
10	—	—	—	Not Occupied	—	—

A24D Front Side Door Outside Handle - Left

FIGURESIO=6217364 Owner=Owner, Schematics LMD=26-Jan-2023



4808321

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 35028909
Service Connector: Service by Harness - See Part Catalog
Description: 5-Way M 1.2 Series, Sealed(NA)

Terminal Part Information

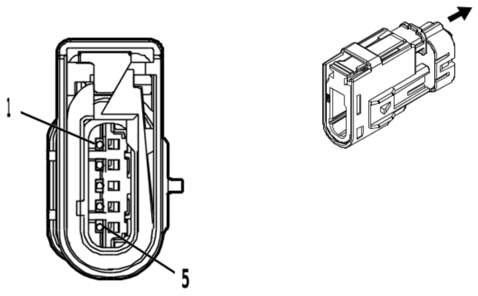
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

A24D Front Side Door Outside Handle - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	2675	Left Front Exterior Door Handle Switch Unlock Signal	I	—
2	0.5	VT	4301	Passive Entry Left Front Antenna Signal High	I	—
3	—	—	—	Not Occupied	—	—
4	0.5	VT / GY	4302	Passive Entry Left Front Antenna Signal Low	I	—
5	0.5	BK / WH	1551	Signal Ground	I	—

A24P Front Side Door Outside Handle - Right

FIGURESIO=6217365 Owner=Owner, Schematics LMD=26-Jan-2023



4808321

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 35028909
Service Connector: Service by Harness - See Part Catalog
Description: 5-Way M 1.2 Series, Sealed(NA)

Terminal Part Information

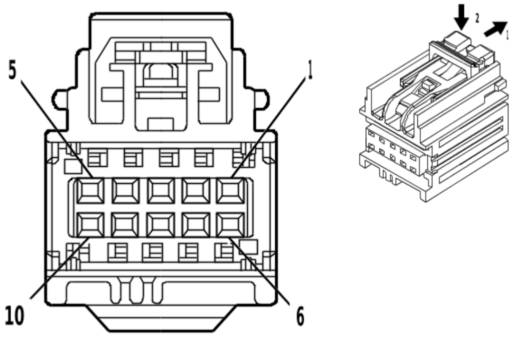
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

A24P Front Side Door Outside Handle - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / VT	2676	Right Front Door Exterior Switch Unlock Signal	I	—
2	0.5	GN / YE	4303	Passive Entry Right Front Door Antenna Signal High	I	—
3	—	—	—	Not Occupied	—	—
4	0.5	GN / BK	4304	Passive Entry Right Front Door Antenna Signal Low	I	—
5	0.5	BK / WH	1451	Signal Ground	I	—

A26 Heater and Air Conditioning User Interface Control - Front

FIGURESIO=6217366 Owner=Owner, Schematics LMD=26-Jan-2023



4891168

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 33315379
Service Connector: 13509649
Description: 10-Way F 0.64 Kaizen Series(NA)

Terminal Part Information

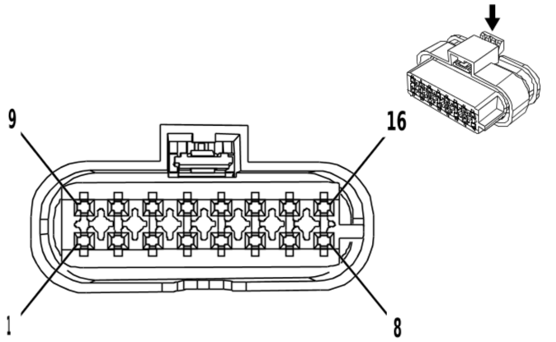
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300629	J-35616-64B (L-BU)	J-38125-215A

A26 Heater and Air Conditioning User Interface Control - Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / WH	1340	Battery Positive Voltage	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
4	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
5	—	—	—	Not Occupied	—	—
6	0.35	GY / GN	4636	HVAC System Enable Signal	I	—
7	—	—	—	Not Occupied	—	—
8	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
9	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
10	0.5	BK / WH	851	Signal Ground	I	—

A38 Reductant Tank Fluid Supply Pump Module (L5P)

FIGURESIO=6257894 Owner=Owner, Schematics
LMD=26-Jan-2023



4259227

Connector Part Information

Harness Type: Emission Reduction Fluid Tank Reservoir Wire Harness
OEM Connector: 33210848
Service Connector: Service by Harness - See Part Catalog
Description: 16-Way F 1.2 MLK Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required
I	Not required	J-35616-16 (LT GN)	No Tool Required

A38 Reductant Tank Fluid Supply Pump Module (L5P)

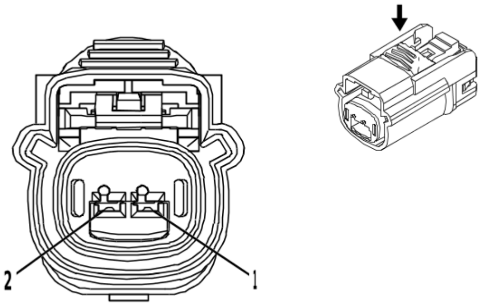
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	3244	Diesel Exhaust Fluid Tank Temperature Sensor Signal	I	—
2	0.5	BN	3245	Diesel Exhaust Fluid Tank Temperature Sensor Low Reference	I	—
3	0.5	BU	3107	Diesel Exhaust Fluid Pressure Sensor Low Reference	I	—
4	0.5	BU	3108	Diesel Exhaust Fluid Pressure Sensor Signal	I	—
5	0.5	BN	3106	Diesel Exhaust Fluid Pressure Sensor 5 Volt Reference	I	—
6	—	—	—	Not Occupied	—	—
7	1.0	WH	3103	Diesel Exhaust Fluid Smart Pump Control	I	—
8	1.0	BN	3875	Diesel Exhaust Fluid Smart Pump Supply Voltage Phase 2	I	—
9	1.0	YE	3677	Diesel Exhaust Fluid Reservoir Heater Control	I	—
10	1.0	BN	3676	Diesel Exhaust Fluid Heating Tank 2 Heater Control	I	—
11	1.0	BU	4318	Diesel Exhaust Fluid Tank Heater Low Control	I	—
12 - 13	—	—	—	Not Occupied	—	—
14	1.0	BU	2937	Diesel Exhaust Fluid Pump Motor Stator Low Reference	I	—
15	1.0	BN	2936	Diesel Exhaust Fluid Heating Tank 2 Heater Control Low	I	—

A38 Reductant Tank Fluid Supply Pump Module (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
16	1.0	YE	3876	Diesel Exhaust Fluid Smart Pump Supply Voltage Phase 3	I	—

A99L Pickup Box Endgate Latch - Left (QK2)

FIGURESIO=6217367 Owner=Owner, Schematics LMD=26-Jan-2023



4332222

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 15514573
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 OCS Series, Sealed(BK)

Terminal Part Information

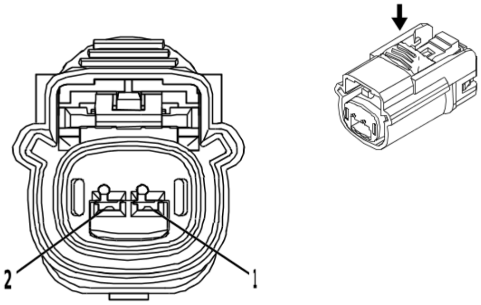
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

A99L Pickup Box Endgate Latch - Left (QK2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	GN	1299	Major Endgate Motor Control	I	—
2	1	YE / BK	7730	Major Endgate Motor Low Reference	I	—

A99R Pickup Box Endgate Latch - Right (QK2)

FIGURESIO=6217368 Owner=Owner, Schematics LMD=26-Jan-2023



4332222

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 15514573
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 OCS Series, Sealed(BK)

Terminal Part Information

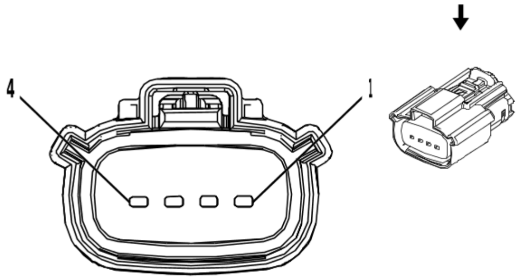
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

A99R Pickup Box Endgate Latch - Right (QK2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	GN	1299	Major Endgate Motor Control	I	—
2	1	YE / BK	7730	Major Endgate Motor Low Reference	I	—

A100L Pickup Box Auxiliary Endgate Latch - Left (QK2)

FIGURESIO=6217369 Owner=Owner, Schematics
LMD=26-Jan-2023



2474747

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 13815807
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

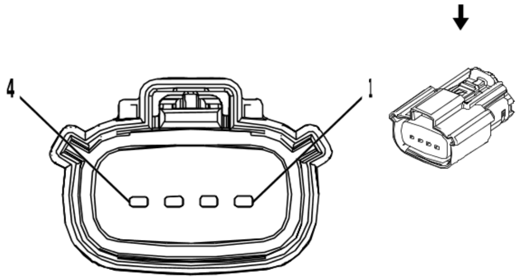
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

A100L Pickup Box Auxiliary Endgate Latch - Left (QK2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE / BU	7295	Left Minor Endgate Ajar Signal	I	—
2	0.75	BK	1850	Ground	I	—
3	1	YE / BK	7730	Major Endgate Motor Low Reference	I	—
4	1	VT	7725	Minor Endgate Motor Control	I	—

A100R Pickup Box Auxiliary Endgate Latch - Right (QK2)

FIGURESIO=6217370 Owner=Owner, Schematics
LMD=26-Jan-2023



2474747

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 13815807
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

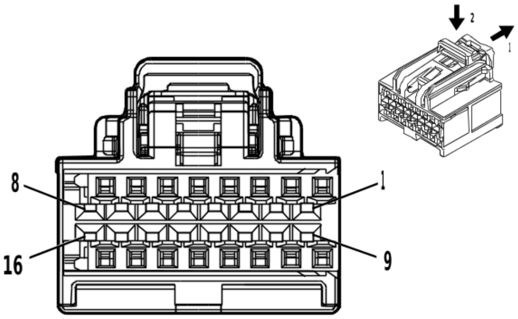
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

A100R Pickup Box Auxiliary Endgate Latch - Right (QK2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	YE / BK	7730	Major Endgate Motor Low Reference	I	—
2	1	VT	7725	Minor Endgate Motor Control	I	—
3 - 4	—	—	—	Not Occupied	—	—

A103 Roof Console X1

FIGURESIO=6217371 Owner=Owner, Schematics LMD=26-Jan-2023



4873254

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 35016344
Service Connector: 13519739
Description: 16-Way F 0.64 OCS Series(GY)

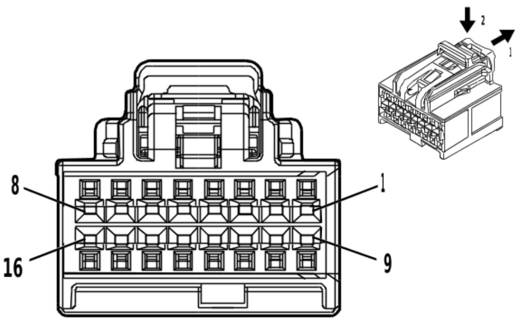
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300660	J-35616-64B (L-BU)	J-38125-215A

A103 Roof Console X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1050	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
4 - 6	—	—	—	Not Occupied	—	—
7	0.35	WH / BN	2904	Row 2 Dome Reading Lamp Switch Signal	I	—
8	0.35	VT / GY	2906	Row 2 Dome Reading Lamp 2 Switch Signal	I	—
9	0.5	RD / YE	240	Battery Positive Voltage	I	—
10	0.5	GN / WH	2854	Body Control Module LIN Bus 8	I	—
11	0.35	BU / GN	4785	Interior Lamp Overhead Enable Signal	I	—
12	0.35	GY / WH	2369	Interior Lamp Overhead 2 Enable Signal	I	—
13	0.35	GN / YE	2903	Row 2 Dome Reading Lamp Interior Lamp Control	I	—
14	0.35	BN / BU	2905	Row 2 Dome Reading Lamp 2 Interior Lamp Control	I	—
15	—	—	—	Not Occupied	—	—
16	0.5	BK	1050	Ground	I	—

A103 Roof Console X2 FIGURESIO=6217372 Owner=Owner, Schematics LMD=26-Jan-2023



4873243

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 35016343
Service Connector: 13519738
Description: 16-Way F 0.64 OCS Series(BK)

Terminal Part Information

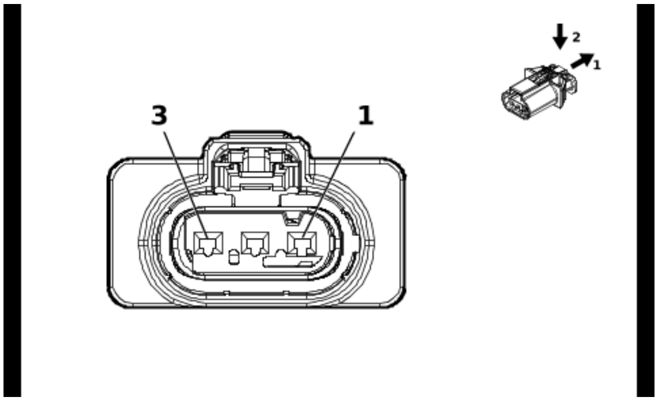
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19354230	J-35616-64B (L-BU)	J-38125-215A

A103 Roof Console X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE / VT	2516	Telematics Switch Green LED Indicator Control	I	—
2	0.35	BN / WH	2517	Telematics Switch Red LED Indicator Control	I	—
3	0.35	GN / WH	2514	Telematics Switch Signal	I	—
4	0.35	GN / BK	2515	Telematics Switch Supply Voltage	I	—
5	0.35	BK / WH	851	Signal Ground	I	—
6	0.35	YE / VT	6191	Power Rear Window Switch Open Signal	I	—
7	0.35	WH	6192	Sliding Rear Window Switch Close Signal	I	—
8	0.5	VT	801	Retained Accessory Power Control	I	—
9 - 16	—	—	—	Not Occupied	—	—

B1 Air Conditioning Refrigerant Pressure Sensor (L5P)

FIGURESIO=6217373 Owner=Owner, Schematics
LMD=26-Jan-2023



5877159

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35242152
Service Connector: 85596544
Description: 3-Way F 1.2 MLK Series, Sealed(BK)

Terminal Part Information

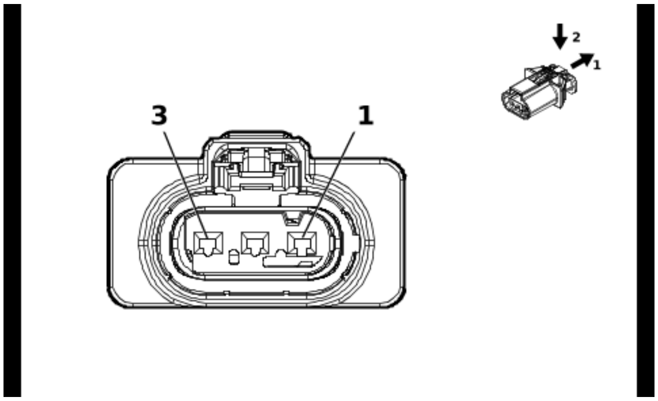
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B1 Air Conditioning Refrigerant Pressure Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—
2	0.5	GN	380	Air Conditioning Refrigerant Pressure Sensor Signal	I	—
3	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—

B1 Air Conditioning Refrigerant Pressure Sensor (L8T)

FIGURESIO=6217374 Owner=Owner, Schematics
LMD=26-Jan-2023



5877159

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35242152
Service Connector: 85596544
Description: 3-Way F 1.2 MLK Series, Sealed(BK)

Terminal Part Information

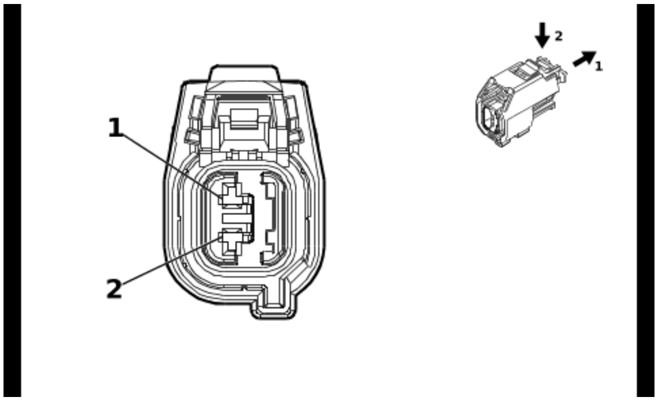
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B1 Air Conditioning Refrigerant Pressure Sensor (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—
2	0.5	GN	380	Air Conditioning Refrigerant Pressure Sensor Signal	I	—
3	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—

B5LF Front Wheel Speed Sensor - Left

FIGURESIO=6217375 Owner=Owner, Schematics LMD=26-Jan-2023



5666214

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33189092
Service Connector: 85526683
Description: 2-Way F 1.5 OCS Series, Sealed(GY)

Terminal Part Information

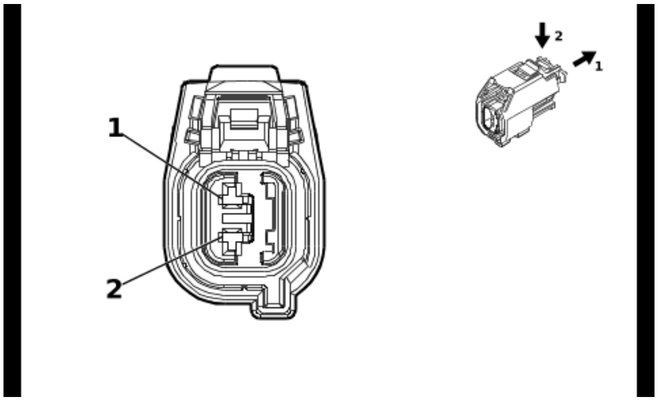
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

B5LF Front Wheel Speed Sensor - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / WH	7064	Left Front Wheel Speed Sensor Control	I	—
2	0.5	GY	830	Left Front Wheel Speed Sensor Signal	I	—

B5LR Rear Wheel Speed Sensor - Left

FIGURESIO=6217376 Owner=Owner, Schematics LMD=26-Jan-2023



5666214

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33189092
Service Connector: 85526683
Description: 2-Way F 1.5 OCS Series, Sealed(GY)

Terminal Part Information

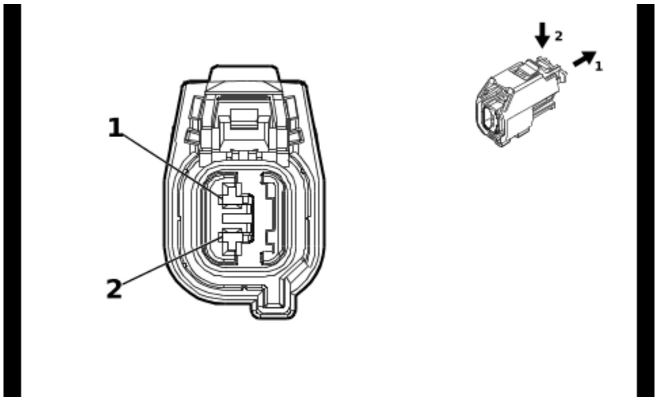
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

B5LR Rear Wheel Speed Sensor - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / BK	7127	Left Rear Wheel Speed Sensor Control	I	—
2	0.5	BU	884	Left Rear Wheel Speed Sensor Signal	I	—

B5RF Front Wheel Speed Sensor - Right (L5P)

FIGURESIO=6217377 Owner=Owner, Schematics LMD=26-Jan-2023



5666214

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33189092
Service Connector: 85526683
Description: 2-Way F 1.5 OCS Series, Sealed(GY)

Terminal Part Information

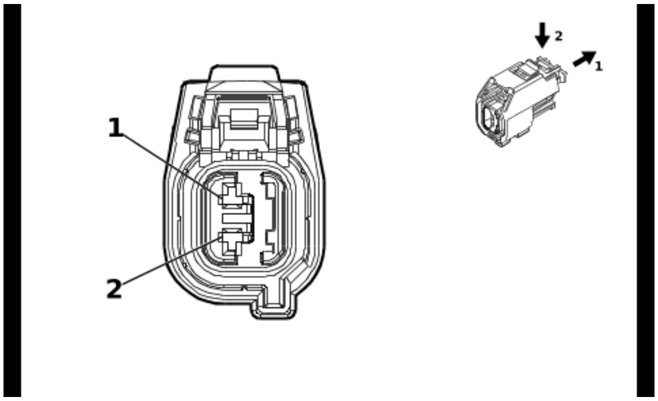
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

B5RF Front Wheel Speed Sensor - Right (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / BN	7065	Right Front Wheel Speed Sensor Control	I	—
2	0.5	YE	872	Right Front Wheel Speed Sensor Signal	I	—

B5RF Front Wheel Speed Sensor - Right (L8T)

FIGURESIO=6217379 Owner=Owner, Schematics LMD=26-Jan-2023



5666214

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33189092
Service Connector: 85526683
Description: 2-Way F 1.5 OCS Series, Sealed(GY)

Terminal Part Information

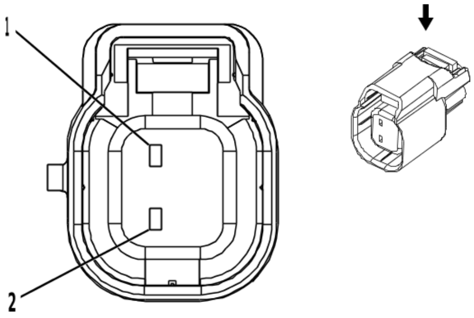
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

B5RF Front Wheel Speed Sensor - Right (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / BN	7065	Right Front Wheel Speed Sensor Control	I	—
2	0.5	YE	872	Right Front Wheel Speed Sensor Signal	I	—

B5RR Rear Wheel Speed Sensor - Right

FIGURESIO=6217380 Owner=Owner, Schematics LMD=26-Jan-2023



4115616

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33122852
Service Connector: 19366860
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

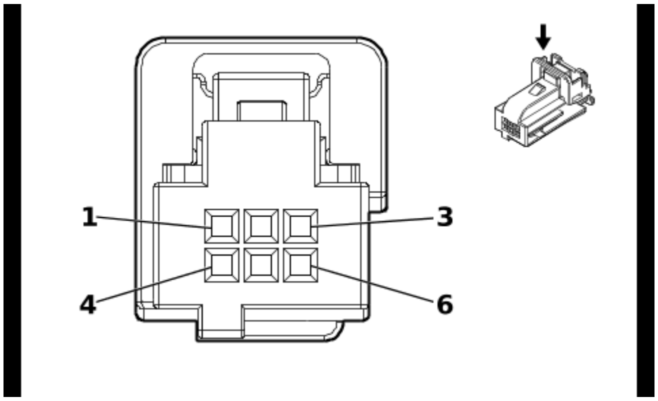
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

B5RR Rear Wheel Speed Sensor - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / YE	7128	Right Rear Wheel Speed Sensor Control	I	—
2	0.5	VT	882	Right Rear Wheel Speed Sensor Signal	I	—

B10D Sun Load and Ambient Light and Security Indicator Sensor

FIGURESIO=6217381 Owner=Owner, Schematics LMD=26-Jan-2023



2282896

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 15338980
Service Connector: 85587649
Description: 6-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

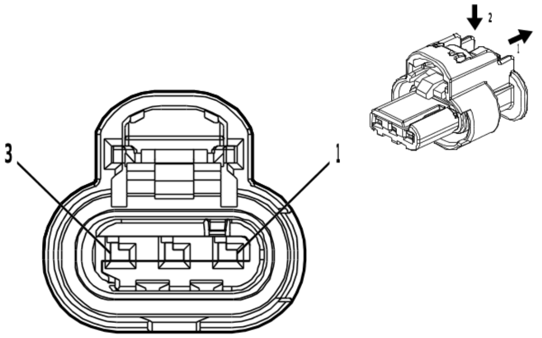
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B10D Sun Load and Ambient Light and Security Indicator Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	590	Driver Solar Sensor Signal	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	WH / BU	278	Ambient Light Sensor Signal	I	—
4	0.35	BU / WH	734	Inside Air Temperature Sensor Signal	I	—
5	0.35	GY	728	Security Indicator Control	I	—
6	0.35	BK / YE	407	Sensor Low Reference	I	—

B12P Automatic Transmission Fluid Pressure Sensor - Power Take-Off (L5P)

FIGURESIO=6217382 Owner=Owner, Schematics LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33358800
Service Connector: 86792094
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

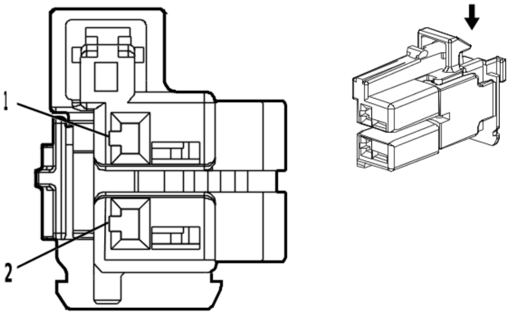
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B12P Automatic Transmission Fluid Pressure Sensor - Power Take-Off (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / WH	8234	Power Take Off Pressure Sensor Signal	I	—
2	0.5	WH	8232	Power Take Off Pressure Sensor 5 Volt Reference	I	—
3	0.5	YE	8233	Power Take Off Pressure Sensor Low Reference	I	—

B13 Automatic Transmission Fluid Temperature Sensor (MGM / MGU / MKM)

FIGURESIO=6257896 Owner=Owner, Schematics LMD=26-Jan-2023



4672650

Connector Part Information

Harness Type: Automatic Transmission Wiring Harness - Control
OEM Connector: 2289523-1
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BN)

Terminal Part Information

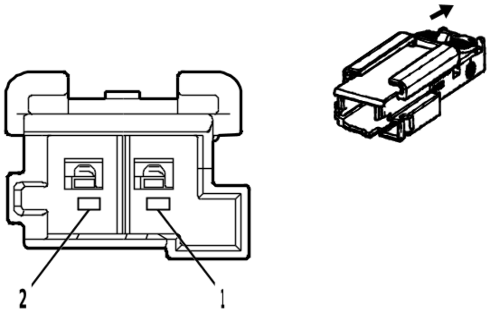
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (BU)	No Tool Required

B13 Automatic Transmission Fluid Temperature Sensor (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / BN	586	Transmission Fluid Temperature Sensor Low Reference	I	—
2	0.5	BN / YE	585	Transmission Fluid Temperature Sensor Signal	I	—

B14A Automatic Transmission Output Speed Sensor (MGM / MGU / MKM)

FIGURESIO=6257898 Owner=Owner, Schematics LMD=26-Jan-2023



4672593

Connector Part Information

Harness Type: Automatic Transmission Wiring Harness - Case
OEM Connector: 2340311-2
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M SLV WIR CONN MALE

Terminal Part Information

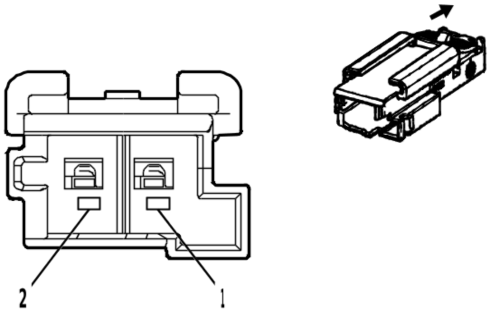
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (BU)	No Tool Required

B14A Automatic Transmission Output Speed Sensor (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE / OG	6358	Output Speed Signal	I	—
2	0.5	GN	4170	Transmission Output Shaft Speed Sensor Circuit 9V Reference	I	—

B14C Automatic Transmission Input Speed Sensor (MGM / MGU / MKM)

FIGURESIO=6257900 Owner=Owner, Schematics LMD=26-Jan-2023



4672611

Connector Part Information

Harness Type: Automatic Transmission Wiring Harness - Case
OEM Connector: 2340311-3
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M SLV WIR CONN MALE

Terminal Part Information

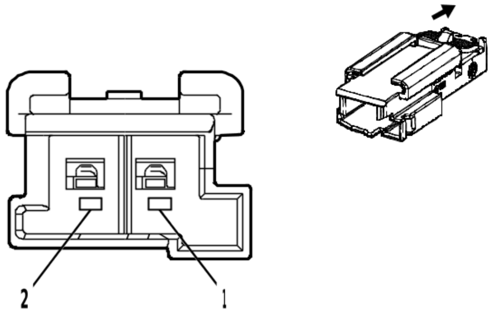
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (BU)	No Tool Required

B14C Automatic Transmission Input Speed Sensor (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / VT	6353	Input Speed Signal	I	—
2	0.5	BU	4171	Transmission Input Shaft Speed Sensor Circuit 9V Reference	I	—

B14DA Transmission Intermediate Speed Sensor 1 (MGM / MGU / MKM)

FIGURESIO=6257902 Owner=Owner, Schematics LMD=26-Jan-2023



4663490

Connector Part Information

Harness Type: Automatic Transmission Wiring Harness - Case
OEM Connector: 2340311-1
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M SLV WIR CONN MALE

Terminal Part Information

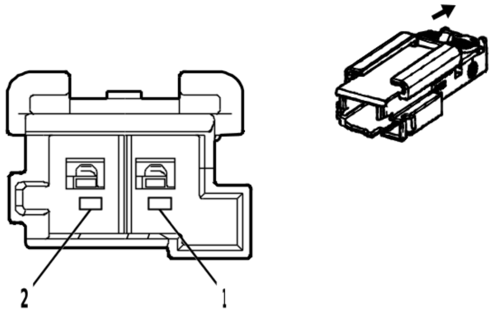
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (BU)	No Tool Required

B14DA Transmission Intermediate Speed Sensor 1 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / GN	4510	Transmission Intermediate Speed Signal	I	—
2	0.5	GN	4170	Transmission Output Shaft Speed Sensor Circuit 9V Reference	I	—

B14DB Automatic Transmission Intermediate Speed Sensor 2 (MGM / MGU / MKM)

FIGURESIO=6257904 Owner=Owner, Schematics LMD=26-Jan-2023



4672593

Connector Part Information

Harness Type: Automatic Transmission Wiring Harness - Case
OEM Connector: 2340311-2
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M SLV WIR CONN MALE

Terminal Part Information

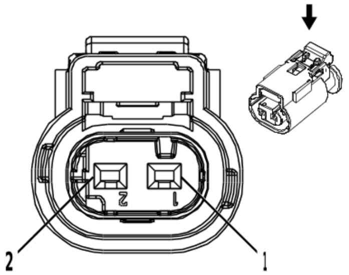
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (BU)	No Tool Required

B14DB Automatic Transmission Intermediate Speed Sensor 2 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / BU	6254	Transmission Input Speed Sensor Signal	I	—
2	0.5	BU	4171	Transmission Input Shaft Speed Sensor Circuit 9V Reference	I	—

B20A Brake Fluid Level Indicator Switch

FIGURESIO=6217383 Owner=Owner, Schematics LMD=26-Jan-2023



2717066

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 13735326
Service Connector: 13587326
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

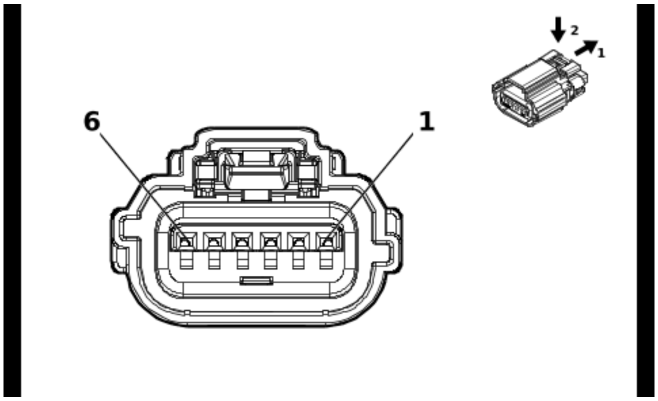
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B20A Brake Fluid Level Indicator Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / GY	333	Brake Fluid Level Signal	I	—
2	1	BK	150	Ground	I	—

B22 Brake Pedal Position Sensor

FIGURESIO=6217384 Owner=Owner, Schematics LMD=26-Jan-2023



5921818

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35547326
Service Connector: 86825468
Description: 6-Way F 0.64 OCS Series, Sealed(NA)

Terminal Part Information

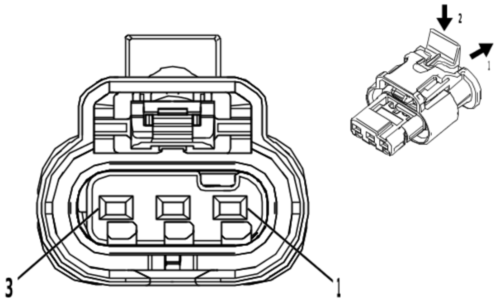
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B22 Brake Pedal Position Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK / BN	5360	Brake Apply Sensor Low Reference	I	—
2	0.35	WH	5359	Brake Apply Sensor Control	I	—
3	0.35	BU / YE	5361	Brake Apply Sensor Signal	I	—
4	0.35	WH / GN	5380	Brake Position Sensor Signal	I	—
5	0.35	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—
6	0.35	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—

B23 Camshaft Position Sensor (L5P)

FIGURESIO=6217385 Owner=Owner, Schematics LMD=26-Jan-2023



4249125

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13594670
Service Connector: 86792094
Description: 3-Way F 1.2 MCP Series, Sealed(BN)

Terminal Part Information

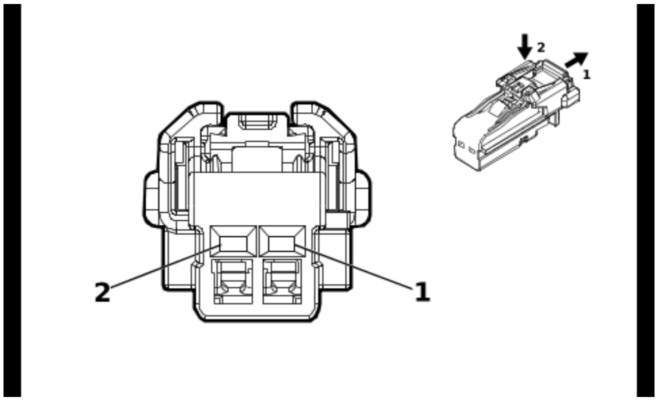
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B23 Camshaft Position Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / YE	5297	Exhaust Camshaft Position Sensor 1 Voltage Reference	I	—
2	0.5	BK / GY	5296	Exhaust Camshaft Position Sensor Low Reference 1	I	—
3	0.5	VT / BK	5273	Exhaust Camshaft Position Sensor 1	I	—

B24LF Mobile Telephone Microphone - Left Front

FIGURESIO=6217386 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 35311666
Service Connector: 87816612
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

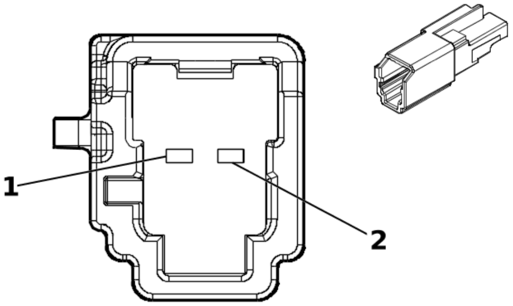
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B24LF Mobile Telephone Microphone - Left Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK / BN	654	Cellular Telephone Microphone Low Reference	I	—
2	0.35	BU	655	Cellular Telephone Microphone Signal	I	—

B24RF Mobile Telephone Microphone - Right Front

FIGURESIO=6217387 Owner=Owner, Schematics
LMD=26-Jan-2023



5360948

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 35264701
Service Connector: 84847259
Description: 2-Way M 1.2 MCON Series(GY)

Terminal Part Information

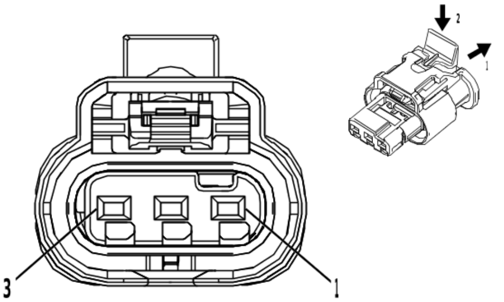
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

B24RF Mobile Telephone Microphone - Right Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / BK	7044	Microphone [-] Signal	I	—
2	0.35	VT / YE	7043	Microphone [+] Signal	I	—

B26 Crankshaft Position Sensor (L5P)

FIGURESIO=6217388 Owner=Owner, Schematics LMD=26-Jan-2023



4249125

Connector Part Information

Harness Type: Engine Wiring Harness Extension
OEM Connector: 13594670
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCP Series, Sealed(BN)

Terminal Part Information

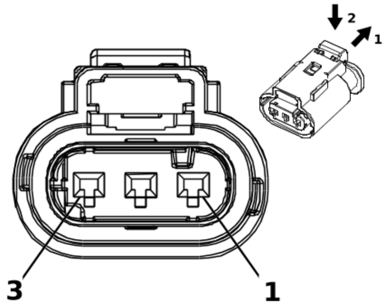
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B26 Crankshaft Position Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / BU	6270	Crankshaft Position Sensor Voltage	I	—
2	0.5	BK / VT	6272	Crankshaft Position Sensor Low Reference	I	—
3	0.5	GN	6271	Crankshaft Position Sensor Signal	I	—

B26 Crankshaft Position Sensor (L8T)

FIGURESIO=6217389 Owner=Owner, Schematics LMD=26-Jan-2023



2717069

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13763990
Service Connector: 84601390
Description: 3-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

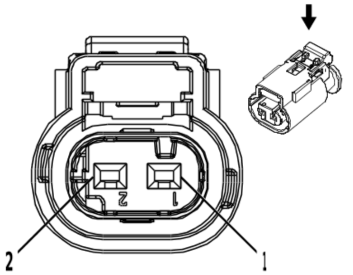
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B26 Crankshaft Position Sensor (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN	6271	Crankshaft Position Sensor Signal	I	—
2	0.5	BK / VT	6272	Crankshaft Position Sensor Low Reference	I	—
3	0.5	VT / BU	6270	Crankshaft Position Sensor Voltage	I	—

B33 Low Coolant Level Switch (L5P)

FIGURESIO=6217390 Owner=Owner, Schematics LMD=26-Jan-2023



2717066

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 13735326
Service Connector: 13587326
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

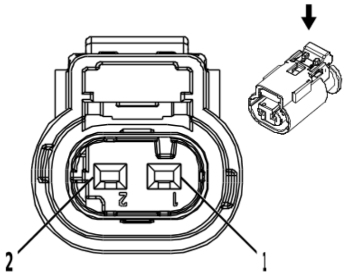
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B33 Low Coolant Level Switch (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / YE	68	Low Coolant Level Indicator Control	I	—
2	1	BK / WH	251	Signal Ground	I	—

B34 Engine Coolant Temperature Sensor (L5P)

FIGURESIO=6217391 Owner=Owner, Schematics LMD=26-Jan-2023



2717066

Connector Part Information

Harness Type: Engine Wiring Harness Extension
OEM Connector: 13503566
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

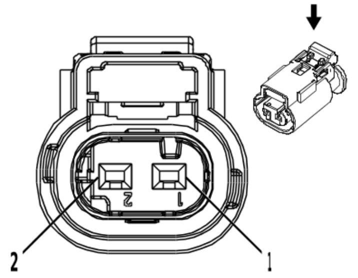
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B34 Engine Coolant Temperature Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	410	Engine Coolant Temperature Sensor Signal	I	—
2	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	I	—

B35 Engine Oil Level Indicator Switch (L5P)

FIGURESIO=6217392 Owner=Owner, Schematics LMD=26-Jan-2023



2717066

Connector Part Information

Harness Type: Engine Wiring Harness Extension
OEM Connector: 13503566
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

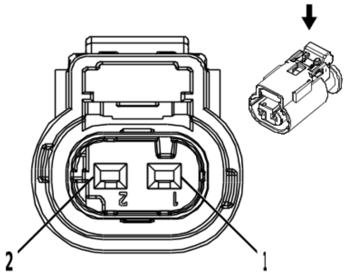
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B35 Engine Oil Level Indicator Switch (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / WH	6151	Engine Control Module Ground	I	—
2	0.5	BN / GN	1174	Oil Level Switch Signal	I	—

B35 Engine Oil Level Indicator Switch (L8T)

FIGURESIO=6217393 Owner=Owner, Schematics LMD=26-Jan-2023



2717066

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13735326
Service Connector: 13587326
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

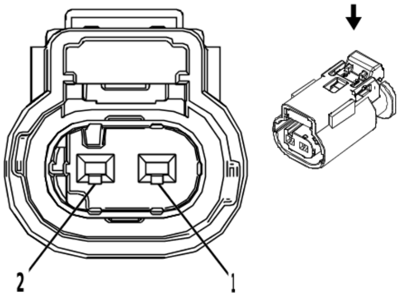
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B35 Engine Oil Level Indicator Switch (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / GN	1174	Oil Level Switch Signal	I	—
2	1	BK / WH	251	Signal Ground	I	—

B36 Engine Oil Temperature Sensor (L8T) FIGURESIO=6217394 Owner=Owner, Schematics LMD=26-Jan-2023



2830969

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13840071
Service Connector: 13587321
Description: 2-Way F 1.2 Multilock Series, Sealed(D-GY)

Terminal Part Information

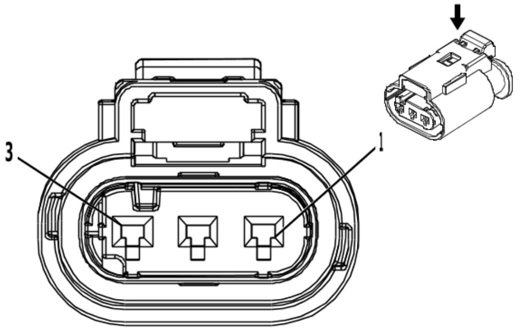
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B36 Engine Oil Temperature Sensor (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / BU	357	Oil Temperature Sensor Signal	I	—
2	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	I	—

B37B Engine Oil Pressure Sensor (L5P)

FIGURESIO=6217395 Owner=Owner, Schematics LMD=26-Jan-2023



3240107

Connector Part Information

Harness Type: Engine Wiring Harness Extension
OEM Connector: 13503573
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

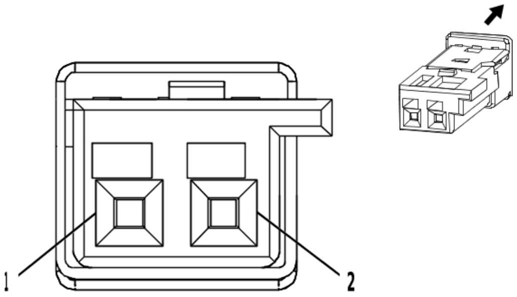
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B37B Engine Oil Pressure Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE / BN	331	Oil Pressure Sensor Signal	I	—
2	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	I	—
3	0.5	BU / RD	460	Engine Control Sensors 5 Volt Reference 1	I	—

B39 Air Conditioning Evaporator Air Temperature Sensor FIGURESIO=6257906 Owner=Owner, Schematics

LMD=26-Jan-2023



2780265

Connector Part Information

Harness Type: Heater Wiring Harness
OEM Connector: 13535799
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 0.64 Micro-Quadlock Series(NA)

Terminal Part Information

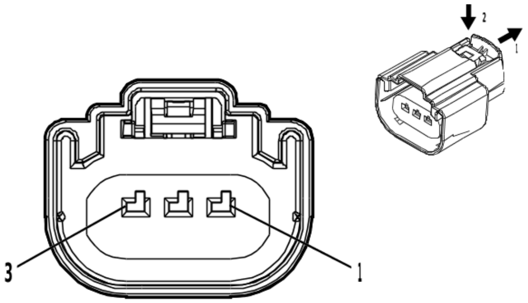
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B39 Air Conditioning Evaporator Air Temperature Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN	6137	Air Conditioning Evaporator Temperature Sensor Signal	I	—
2	0.35	BK / YE	407	Sensor Low Reference	I	—

B47 Fuel Pressure Sensor (L5P)

FIGURESIO=6217396 Owner=Owner, Schematics LMD=26-Jan-2023



4569745

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33343869
Service Connector: 19179750
Description: 3-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

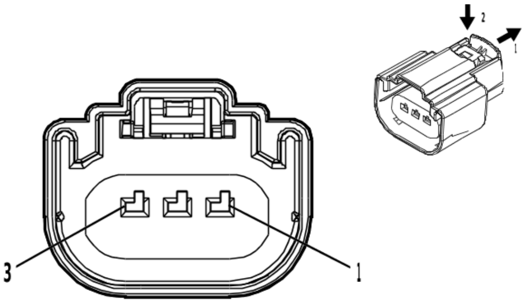
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

B47 Fuel Pressure Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75 0.5	BU / WH BU / WH	7446 7446	Fuel Pressure Sensor Signal Fuel Pressure Sensor Signal	I I	L5P+ N2N L5P- N2N
2	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	I	—
3	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	I	—

B47 Fuel Pressure Sensor (L8T)

FIGURESIO=6217397 Owner=Owner, Schematics LMD=26-Jan-2023



4569745

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33343869
Service Connector: 19179750
Description: 3-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

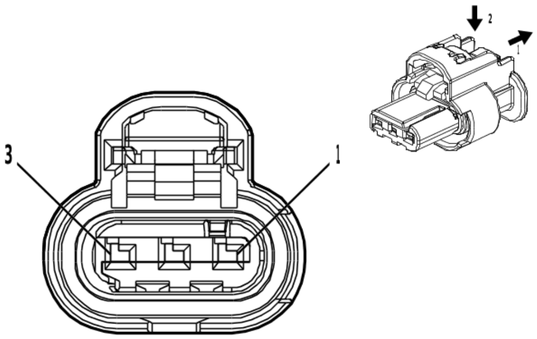
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

B47 Fuel Pressure Sensor (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / WH	7446	Fuel Pressure Sensor Signal	I	—
2	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	I	—
3	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	I	—

B47 Fuel Pressure Sensor (L8T-N2N)

FIGURESIO=6217398 Owner=Owner, Schematics LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33358800
Service Connector: 86792094
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

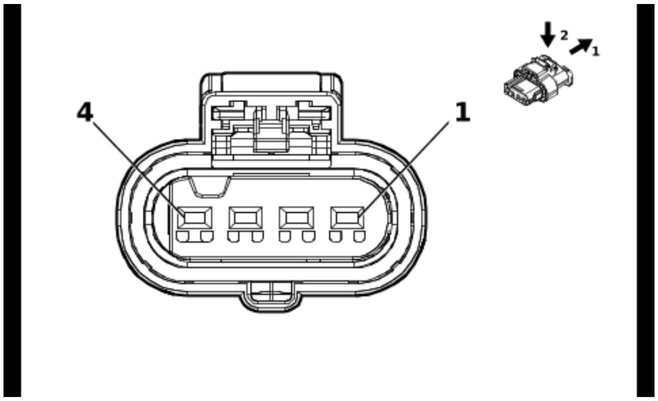
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B47 Fuel Pressure Sensor (L8T-N2N)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	I	—
2	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	I	—
3	0.5	BU / WH	7446	Fuel Pressure Sensor Signal	I	—

B47B Fuel Rail Pressure Sensor (L5P) FIGURESIO=6217399 Owner=Owner, Schematics LMD=26-Jan-2023



5985721

Connector Part Information

Harness Type: Engine Wiring Harness Extension
OEM Connector: 13534801
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.2 HPF Series, Sealed(BK)

Terminal Part Information

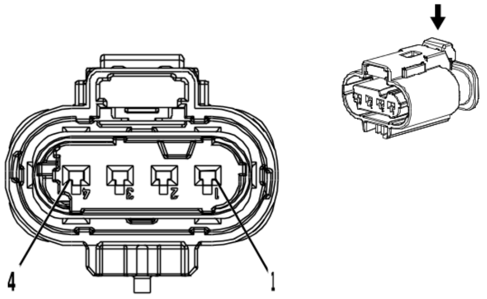
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B47B Fuel Rail Pressure Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / RD	2917	Fuel Rail Pressure Sensor 5V Reference	I	—
2	0.5	BN / YE	2161	Fuel Rail Pressure Sensor 2 Signal	I	—
3	0.5	BK / GN	2919	Fuel Rail Pressure Sensor Low Reference	I	—
4	0.5	BU / WH	2918	Fuel Rail Pressure Sensor Signal	I	—

B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L8T)

FIGURESIO=6217400 Owner=Owner, Schematics
LMD=26-Jan-2023



4381050

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33253021
Service Connector: 19354075
Description: 4-Way F 1.2 Multilock Series, Sealed(GY)

Terminal Part Information

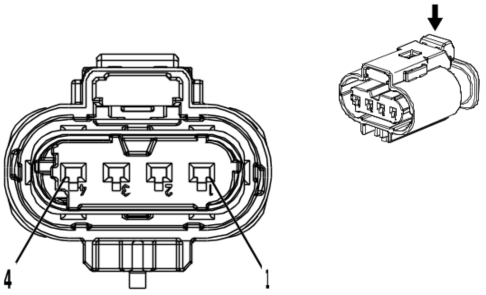
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / WH	3113	HO2S Heater Low Control Bank 1 Sensor 1	I	—
2	0.5	VT / BU	5293	Powertrain Main Relay Fused Supply Voltage 4	I	—
3	0.5	WH / BK	3111	HO2S Low Signal Bank 1 Sensor 1	I	—
4	0.5	VT / GY	3110	HO2S High Signal Bank 1 Sensor 1	I	—

B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (L8T)

FIGURESIO=6217401 Owner=Owner, Schematics
LMD=26-Jan-2023



4036370

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 15532690
Service Connector: 19330920
Description: 4-Way F 1.2 Multilock Series, Sealed(GY)

Terminal Part Information

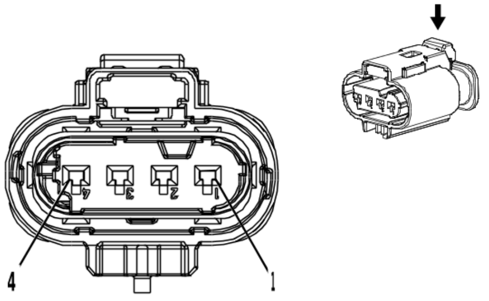
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / WH	3122	HO2S Heater Low Control Bank 1 Sensor 2	I	—
2	0.5	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	I	—
3	0.5	WH / YE	3121	HO2S Low Signal Bank 1 Sensor 2	I	—
4	0.5	BN	3120	HO2S High Signal Bank 1 Sensor 2	I	—

B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (L8T)

FIGURESIO=6217402 Owner=Owner, Schematics
LMD=26-Jan-2023



4381050

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33253021
Service Connector: 19354075
Description: 4-Way F 1.2 Multilock Series, Sealed(GY)

Terminal Part Information

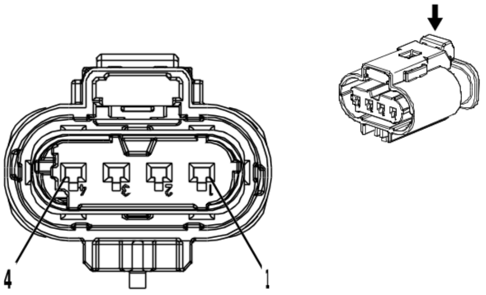
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / YE	3212	HO2S Heater Low Control Bank 2 Sensor 1	I	—
2	0.5	VT / BU	5293	Powertrain Main Relay Fused Supply Voltage 4	I	—
3	0.5	YE / WH	3211	HO2S Low Signal Bank 2 Sensor 1	I	—
4	0.5	VT / WH	3210	HO2S High Signal Bank 2 Sensor 1	I	—

B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (L8T)

FIGURESIO=6217403 Owner=Owner, Schematics
LMD=26-Jan-2023



4036370

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 15532690
Service Connector: 19330920
Description: 4-Way F 1.2 Multilock Series, Sealed(GY)

Terminal Part Information

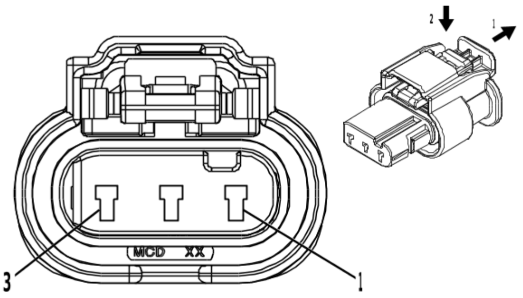
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / BN	3223	HO2S Heater Low Control Bank 2 Sensor 2	I	—
2	0.5	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	I	—
3	0.5	YE / BU	3221	HO2S Low Signal Bank 2 Sensor 2	I	—
4	0.5	VT / GN	3220	HO2S High Signal Bank 2 Sensor 2	I	—

B55 Engine Compartment Cover Switch

FIGURESIO=6217404 Owner=Owner, Schematics LMD=26-Jan-2023



4421568

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33320864
Service Connector: 19368220
Description: 3-Way F 1.2 MCON-LL Series, Sealed(BK)

Terminal Part Information

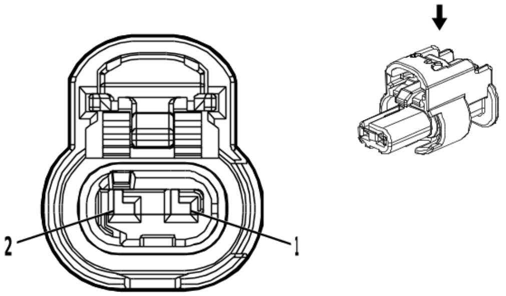
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B55 Engine Compartment Cover Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	4063	Hood Status A Signal	I	—
2	0.35	BN / GN	4064	Hood Status B Signal	I	—
3	0.5	BK	150	Ground	I	—

B58L Airbag Front End Discriminating Sensor - Left

FIGURESIO=6217405 Owner=Owner, Schematics
LMD=26-Jan-2023



4690744

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33375932
Service Connector: 19366871
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

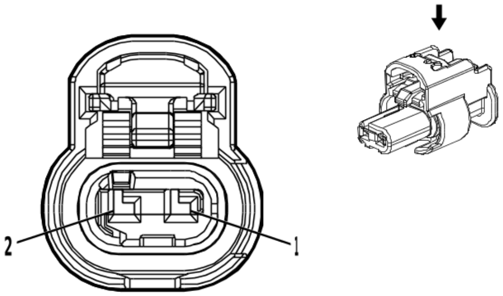
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B58L Airbag Front End Discriminating Sensor - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / YE	354	Left Front Impact Discriminating Sensor Signal	I	—
2	0.5	BK / OG	5045	Left Front Impact Discriminating Sensor Low Reference	I	—

B58R Airbag Front End Discriminating Sensor - Right

FIGURESIO=6217406 Owner=Owner, Schematics
LMD=26-Jan-2023



4690744

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33375932
Service Connector: 19366871
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

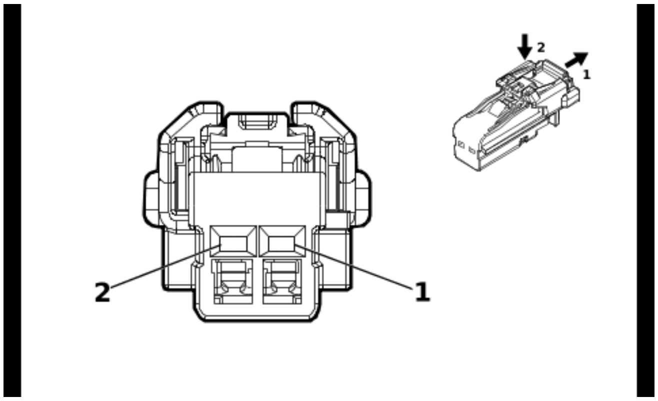
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B58R Airbag Front End Discriminating Sensor - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GN	1409	Right Front Impact Discriminating Sensor Signal	I	—
2	0.5	BK / OG	5600	Right Front Impact Discriminating Sensor Low Reference	I	—

B61P Seat Belt Tension Sensor - Passenger

FIGURESIO=6217407 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35311666
Service Connector: 87816612
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

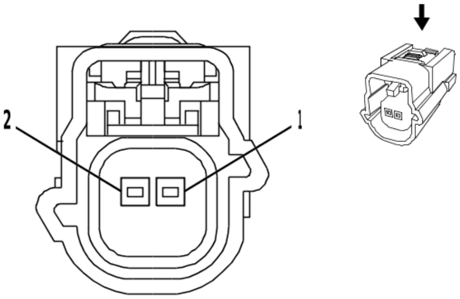
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B61P Seat Belt Tension Sensor - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY / OG	3946	Passenger Automatic Locking Retractor Switch Low Reference	I	—
2	0.35	OG / BN	3947	Passenger Automatic Locking Retractor Switch Signal	I	—

B63LF Airbag Side Impact Sensor - Left Front Door

FIGURESIO=6217408 Owner=Owner, Schematics
LMD=26-Jan-2023



2179777

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 13610095
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 0.64 Series, Sealed(GY)

Terminal Part Information

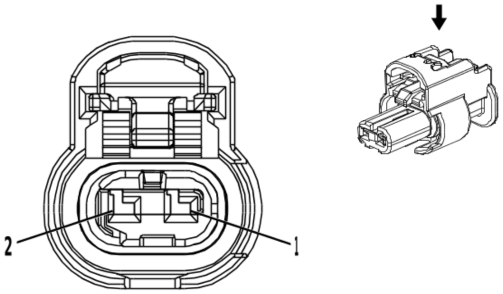
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B63LF Airbag Side Impact Sensor - Left Front Door

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GN	2132	Left Front Side Impact Sensor Signal	I	—
2	0.5	BK / OG	6628	Left Front Side Impact Sensor Low Reference	I	—

B63LR Airbag Side Impact Rear Sensor - Left Door

FIGURESIO=6217409 Owner=Owner, Schematics
LMD=26-Jan-2023



4335931

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Left
OEM Connector: 33371691
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

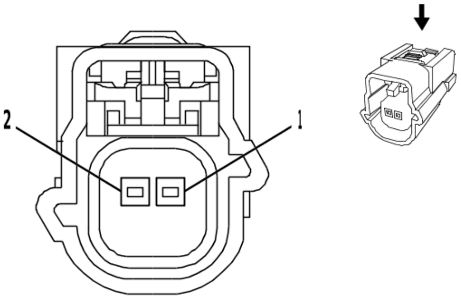
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B63LR Airbag Side Impact Rear Sensor - Left Door

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / BU	6622	Left Rear Side Impact Sensor Signal	I	—
2	0.5	BK / OG	6623	Left Rear Side Impact Sensor Low Reference	I	—

B63RF Airbag Side Impact Sensor - Right Front Door

FIGURESIO=6217410 Owner=Owner, Schematics
LMD=26-Jan-2023



2179777

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 13610095
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 0.64 Series, Sealed(GY)

Terminal Part Information

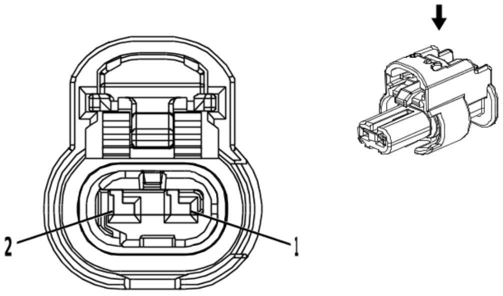
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B63RF Airbag Side Impact Sensor - Right Front Door

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / OG	2134	Right Front Side Impact Sensor Signal	I	—
2	0.5	BK / OG	6629	Right Front Side Impact Sensor Low Reference	I	—

B63RR Airbag Side Impact Rear Sensor - Right Door

FIGURESIO=6217411 Owner=Owner, Schematics
LMD=26-Jan-2023



4335931

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Right
OEM Connector: 33371691
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

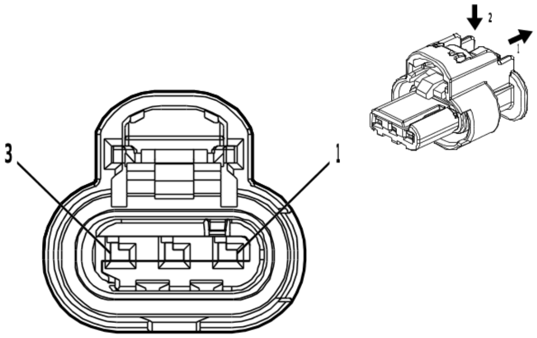
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B63RR Airbag Side Impact Rear Sensor - Right Door

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / WH	6626	Right Rear Side Impact Sensor Signal	I	—
2	0.5	BK / OG	6627	Right Rear Side Impact Sensor Low Reference	I	—

B65 Manifold Absolute Pressure and Intake Air Temperature Sensor (L5P)

FIGURESIO=6217412 Owner=Owner, Schematics LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13514590
Service Connector: 86792094
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

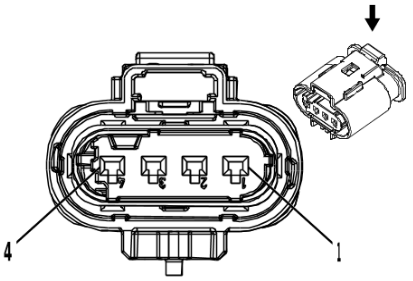
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B65 Manifold Absolute Pressure and Intake Air Temperature Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / RD	460	Engine Control Sensors 5 Volt Reference 1	I	—
2	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	I	—
3	0.5	GN / WH	432	Manifold Absolute Pressure Sensor Signal	I	—

B66 Intake Air Temperature Sensor (L5P) FIGURESIO=6217413 Owner=Owner, Schematics LMD=26-Jan-2023



2717079

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13503575
Service Connector: 13587299
Description: 4-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

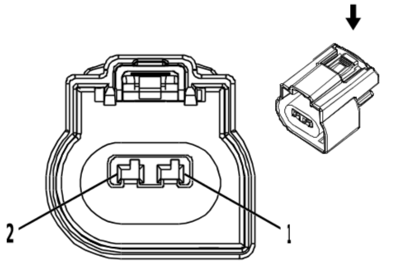
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B66 Intake Air Temperature Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / BU	7329	Pre-Throttle Air Temperature Signal	I	—
2	0.5	GY / RD	10667	Engine Control Sensors 5 Volt Reference	I	—
3	0.5	BK / GN	580	Engine Control Sensors Low Reference 2	I	—
4	—	—	—	Not Occupied	—	—

B68A Knock Sensor 1 (L8T)

FIGURESIO=6217414 Owner=Owner, Schematics LMD=26-Jan-2023



2717073

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13814755
Service Connector: 19301207
Description: 2-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

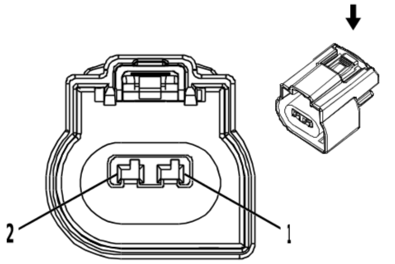
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

B68A Knock Sensor 1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / GY	496	Knock Sensor 1 Signal	I	—
2	0.5	BK / YE	1716	Knock Sensor Low Reference 1	I	—

B68B Knock Sensor 2 (L8T)

FIGURESIO=6217415 Owner=Owner, Schematics LMD=26-Jan-2023



2717073

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13814755
Service Connector: 19301207
Description: 2-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

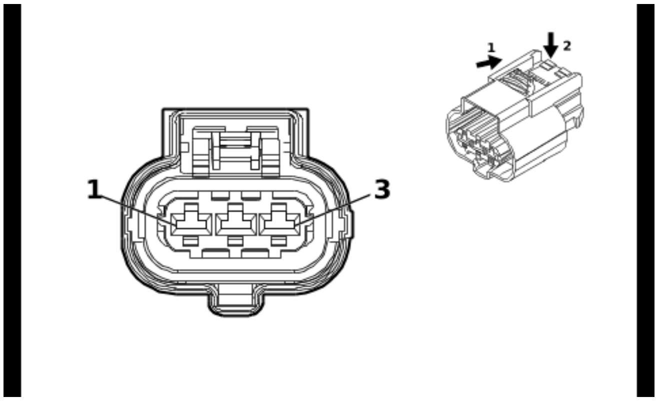
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

B68B Knock Sensor 2 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / GY	1876	Knock Sensor 2 Signal	I	—
2	0.5	BK / GY	2303	Knock Sensor Low Reference 2	I	—

B74 Manifold Absolute Pressure Sensor (L8T)

FIGURESIO=6217416 Owner=Owner, Schematics LMD=26-Jan-2023



4900977

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35133579
Service Connector: 84815530
Description: 3-Way F 2.8 CTS Series, Sealed(BK)

Terminal Part Information

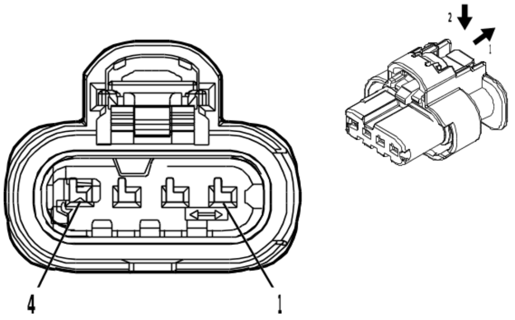
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

B74 Manifold Absolute Pressure Sensor (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	—
2	0.5	BK / GN	469	Manifold Absolute Pressure Sensor Low Reference	I	—
3	0.5	GN / WH	432	Manifold Absolute Pressure Sensor Signal	I	—

B75 Mass Airflow Sensor (L5P)

FIGURESIO=6217417 Owner=Owner, Schematics LMD=26-Jan-2023



4934614

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33367416
Service Connector: 85519071
Description: 4-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

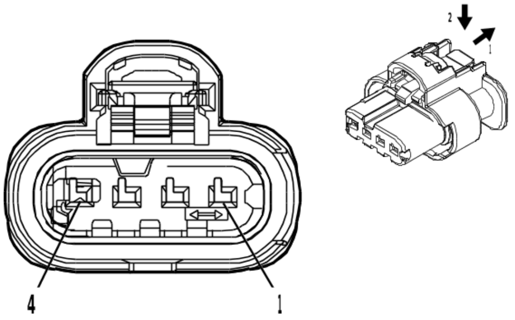
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B75 Mass Airflow Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	I	—
2	0.5	BU	492	Mass Air Flow Sensor Signal	I	—
3	0.5	GN / WH	4622	Engine Control Module LIN Bus 2	I	—
4	0.5	BK / WH	6151	Engine Control Module Ground	I	—

B75 Mass Airflow Sensor (L8T)

FIGURESIO=6217418 Owner=Owner, Schematics LMD=26-Jan-2023



4934614

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33367416
Service Connector: 85519071
Description: 4-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

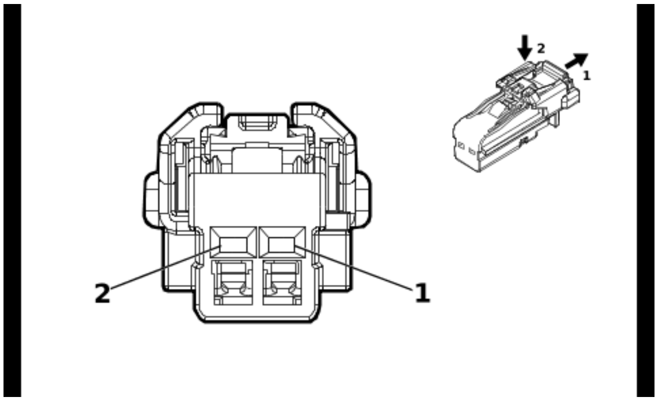
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B75 Mass Airflow Sensor (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	I	—
2	0.5	BU	492	Mass Air Flow Sensor Signal	I	—
3	0.5	GN / WH	4622	Engine Control Module LIN Bus 2	I	—
4	1	BK / WH	251	Signal Ground	I	—

B77 Radio Volume Compensator Interior Noise Microphone

FIGURESIO=6257908 Owner=Owner, Schematics
LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13532422
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

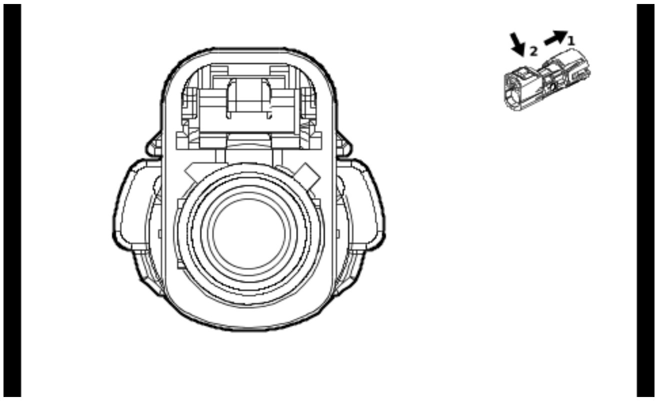
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

B77 Radio Volume Compensator Interior Noise Microphone

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	GN / BK	3008	Active Noise Cancellation Microphone 1 Feedback Signal	I	—
2	—	GN / BN	3005	Active Noise Cancellation Microphone 1 Signal	I	—

B87 Rearview Driver Information Camera (UV2)

FIGURESIO=6217458 Owner=Owner, Schematics LMD=30-Jan-2023



5758030

Connector Part Information

Harness Type: Endgate Wiring Harness COAX
OEM Connector: 35187032
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BK)

Terminal Part Information

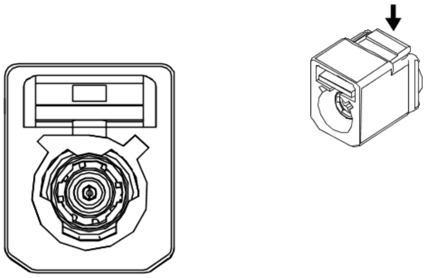
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

B87 Rearview Driver Information Camera (UV2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Rear Vision Camera Coaxial Video Signal	I	—

B87CA Auxiliary Rearview Camera - Cargo Area (UVN)

FIGURESIO=6217419 Owner=Owner, Schematics
LMD=26-Jan-2023



3293633

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness COAX
OEM Connector: 13519801
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BK)

Terminal Part Information

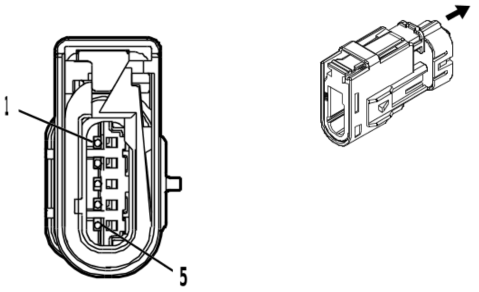
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

B87CA Auxiliary Rearview Camera - Cargo Area (UVN)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Cargo Bed Rear Vision Camera Coaxial Video Signal	I	—

B87CA Auxiliary Rearview Camera - Cargo Area (UVO)

FIGURESIO=6217420 Owner=Owner, Schematics
LMD=26-Jan-2023



4808321

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness
OEM Connector: 35028910
Service Connector: Service by Harness - See Part Catalog
Description: 5-Way M 1.2 Series, Sealed(GY)

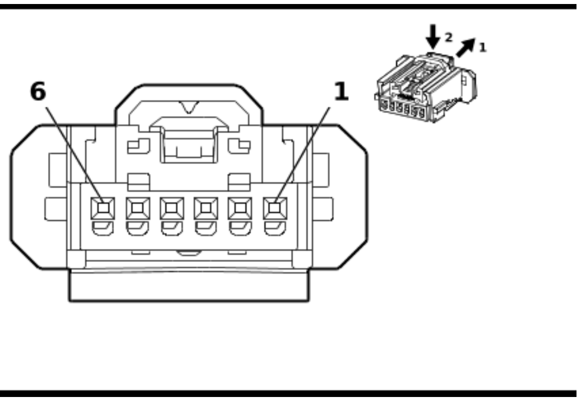
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

B87CA Auxiliary Rearview Camera - Cargo Area (UVO)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY / YE	6972	Rearview Camera Signal [+]	I	—
2	0.35	WH / BU	6973	Rearview Camera Signal [-]	I	—
3	0.35	BU	6974	Rearview Camera Low Reference	I	—
4	0.35	BK / WH	1851	Signal Ground	I	—
5	0.35	VT / GN	1739	Run/Crank Ignition 1 Voltage	I	—

B99 Steering Angle Sensor Module FIGURESIO=6217421 Owner=Owner, Schematics LMD=26-Jan-2023



6171406

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 13522696
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 2.0 Gen 50 Series(BK)

Terminal Part Information

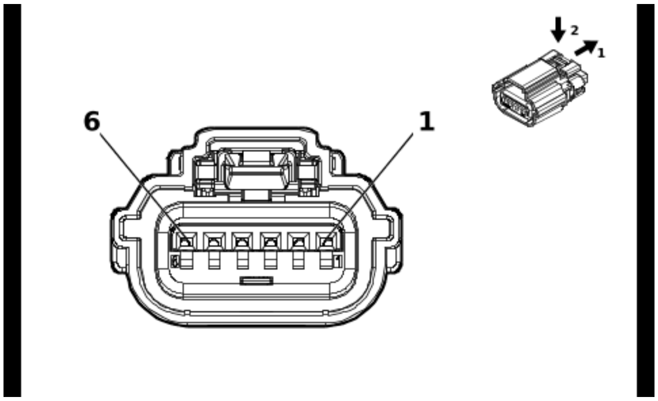
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

B99 Steering Angle Sensor Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / WH	10279	Private Steering Angle CAN Bus [-] Serial Data	I	—
3	0.35	YE	10280	Private Steering Angle CAN Bus [+] Serial Data	I	—
5	0.35	GN / BN	2087	Multi-axis Acceleration Sensor Supply Voltage	I	—
6	0.35	BK / WH	851	Signal Ground	I	—

B107 Accelerator Pedal Position Sensor

FIGURESIO=6217422 Owner=Owner, Schematics LMD=26-Jan-2023



5921819

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35390637
Service Connector: 86825466
Description: 6-Way F 0.64 OCS Series, Sealed(BK)

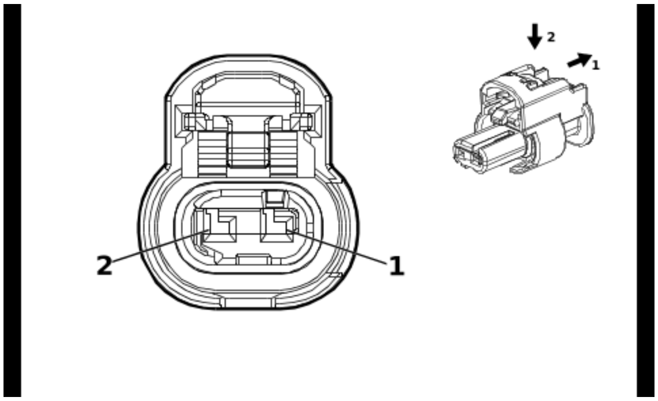
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B107 Accelerator Pedal Position Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH / RD	1164	Accelerator Pedal Position 5V Reference 1	I	—
2	0.35	YE / WH	1161	Accelerator Pedal Position Signal 1	I	—
3	0.35	BK / BU	1271	Accelerator Pedal Position Low Reference 1	I	—
4	0.35	BK / VT	1272	Accelerator Pedal Position Low Reference 2	I	—
5	0.35	GN / WH	1162	Accelerator Pedal Position Signal 2	I	—
6	0.35	BN / RD	1274	Accelerator Pedal Position 5V Reference 2	I	—

B110 Battery Monitor Module X1 FIGURESIO=6257910 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33327048
Service Connector: 85519075
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B110 Battery Monitor Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN / YE	2855	Body Control Module LIN Bus 9	I	—
2	0.75	RD / YE	2340	Battery Positive Voltage	I	—

B110 Battery Monitor Module X2

—

Connector Part Information

Harness Type: Battery Negative Cable
OEM Connector: 13516387
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Ring Terminal

Terminal Part Information

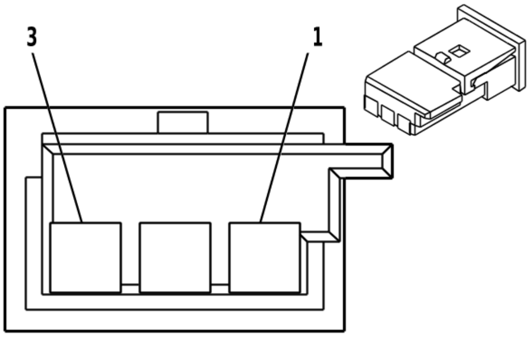
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

B110 Battery Monitor Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	50	BK	550	Ground	I	—

B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor (CE1)

FIGURESIO=6257913 Owner=Owner, Schematics LMD=26-Jan-2023



647970

Connector Part Information

Harness Type: Headlamp Automatic Control Ambient Light Sensor Wiring Harness
OEM Connector: 13153088
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

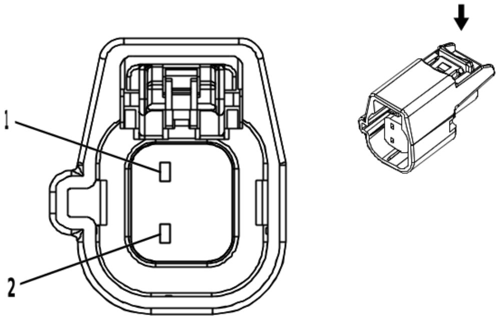
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B117A Windshield Outside Moisture/Ambient Light and Humidity Sensor (CE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD / WH	1340	Battery Positive Voltage	I	—
2	0.35	GN / BN	4115	Body Control Module LIN Bus 5	I	—
3	0.35	BK	1050	Ground	I	—

B118 Windshield Washer Solvent Container Level Sensor

FIGURESIO=6217424 Owner=Owner, Schematics
LMD=26-Jan-2023



3958652

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33113086
Service Connector: 13593220
Description: 2-Way F 1.5 Series, Sealed(L-GY)

Terminal Part Information

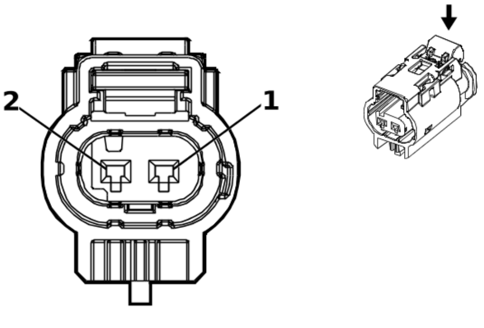
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

B118 Windshield Washer Solvent Container Level Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT	185	Low Washer Fluid Indicator Control	I	—
2	0.5	BK	150	Ground	I	—

B130 Exhaust Gas Recirculation Temperature Sensor (L5P)

FIGURESIO=6217425 Owner=Owner, Schematics
LMD=26-Jan-2023



5207726

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13583199
Service Connector: 19332628
Description: 2-Way F 1.2 Multilock Series, Sealed(GY)

Terminal Part Information

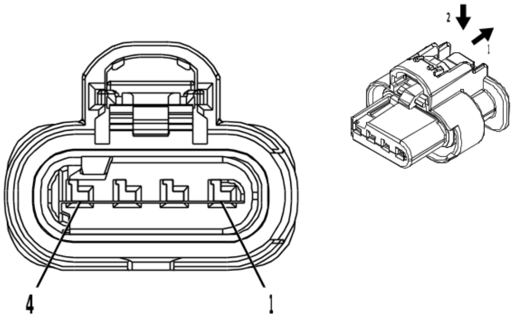
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B130 Exhaust Gas Recirculation Temperature Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE / GN	3236	Exhaust Gas Recirculation Temperature Sensor 2 Signal	I	—
2	0.5	BK / YE	6275	Exhaust Gas Recirculation Temperature Sensor 2 Low Reference	I	—

B136 Exhaust Particulate Matter Sensor (L5P)

FIGURESIO=6217426 Owner=Owner, Schematics LMD=26-Jan-2023



4210809

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33390897
Service Connector: 85518225
Description: 4-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

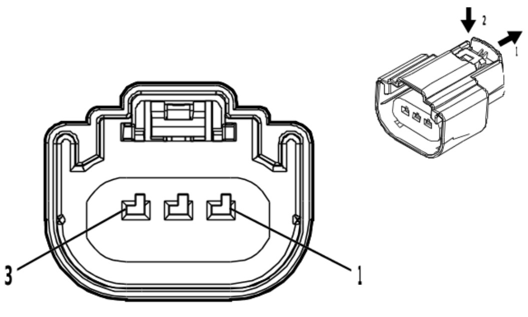
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B136 Exhaust Particulate Matter Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK / WH	1151	Signal Ground	I	—
2	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	I	—
3	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	I	—
4	1	VT / GN	4320	Powertrain Sensor Bus Enable	I	—

B139 Transfer Case Two/Four Wheel Drive Actuator Position Sensor (L5P)

FIGURESIO=6217427 Owner=Owner, Schematics LMD=26-Jan-2023



4569745

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33343869
Service Connector: 19179750
Description: 3-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

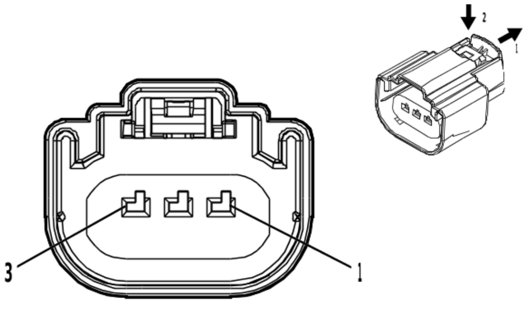
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-2A (GY)	No Tool Required

B139 Transfer Case Two/Four Wheel Drive Actuator Position Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / RD	7477	Gear Position Sensor 5V Reference	II	—
2	0.5	WH / GN	7479	Rotary Position Sensor Signal	I	—
3	0.5	YE / BK	7478	Gear Position Sensor Low Reference	II	—

B139 Transfer Case Two/Four Wheel Drive Actuator Position Sensor (L8T)

FIGURESIO=6217428 Owner=Owner, Schematics LMD=26-Jan-2023



4569745

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33343869
Service Connector: 19179750
Description: 3-Way F 1.5 MX Series, Sealed(BK)

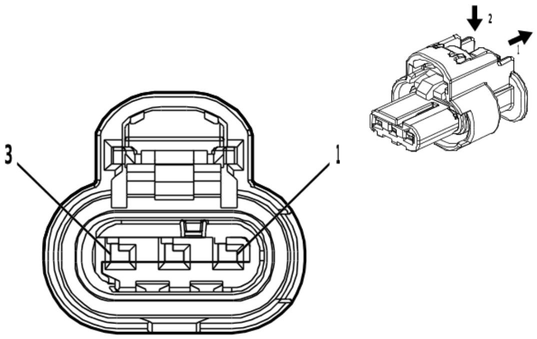
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

B139 Transfer Case Two/Four Wheel Drive Actuator Position Sensor (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / RD	7477	Gear Position Sensor 5V Reference	I	—
2	0.5	WH / GN	7479	Rotary Position Sensor Signal	I	—
3	0.5	YE / BK	7478	Gear Position Sensor Low Reference	I	—

B150 Fuel Tank Pressure Sensor (FHS) FIGURESIO=6217429 Owner=Owner, Schematics LMD=26-Jan-2023



4778903

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33358808
Service Connector: 86792095
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

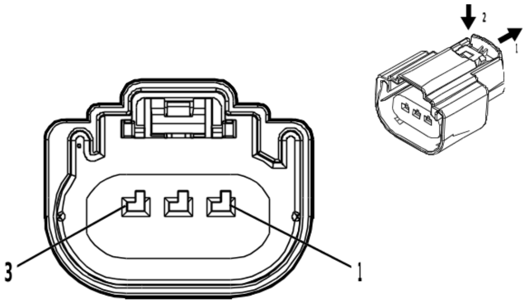
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B150 Fuel Tank Pressure Sensor (FHS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / GN	890	Fuel Tank Pressure Sensor Signal	I	—
2	0.5	BK / BN	6284	Fuel Tank Pressure Sensor Low Reference	I	—
3	0.5	YE / RD	2709	Fuel Tank Pressure Sensor 5V Reference	I	—

B150 Fuel Tank Pressure Sensor (L8T&N2L)

FIGURESIO=6217430 Owner=Owner, Schematics LMD=26-Jan-2023



4589538

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33343864
Service Connector: 84569854
Description: 3-Way F 1.5 MX Series, Sealed(GY)

Terminal Part Information

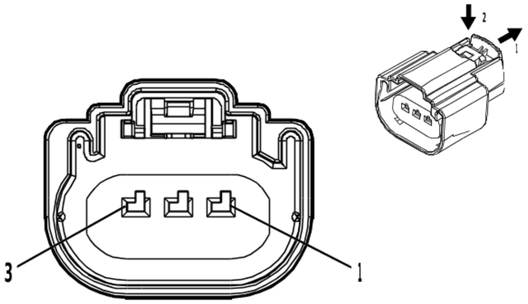
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

B150 Fuel Tank Pressure Sensor (L8T&N2L)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / GN	890	Fuel Tank Pressure Sensor Signal	I	—
2	0.5	BK / BN	6284	Fuel Tank Pressure Sensor Low Reference	I	—
3	0.5	YE / RD	2709	Fuel Tank Pressure Sensor 5V Reference	I	—

B150 Fuel Tank Pressure Sensor (L8T&N2N)

FIGURESIO=6217431 Owner=Owner, Schematics LMD=26-Jan-2023



4589538

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33343864
Service Connector: 84569854
Description: 3-Way F 1.5 MX Series, Sealed(GY)

Terminal Part Information

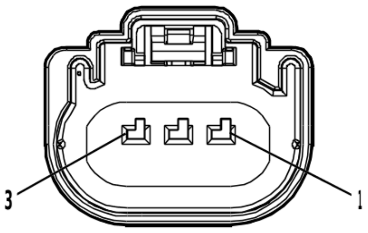
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

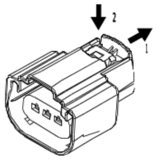
B150 Fuel Tank Pressure Sensor (L8T&N2N)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / GN	890	Fuel Tank Pressure Sensor Signal	I	—
2	0.5	BK / BN	6284	Fuel Tank Pressure Sensor Low Reference	I	—
3	0.5	YE / RD	2709	Fuel Tank Pressure Sensor 5V Reference	I	—

B150 Fuel Tank Pressure Sensor (N2M)

FIGURESIO=6217432 Owner=Owner, Schematics LMD=26-Jan-2023





4589538

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33343864
Service Connector: 84569854
Description: 3-Way F 1.5 MX Series, Sealed(GY)

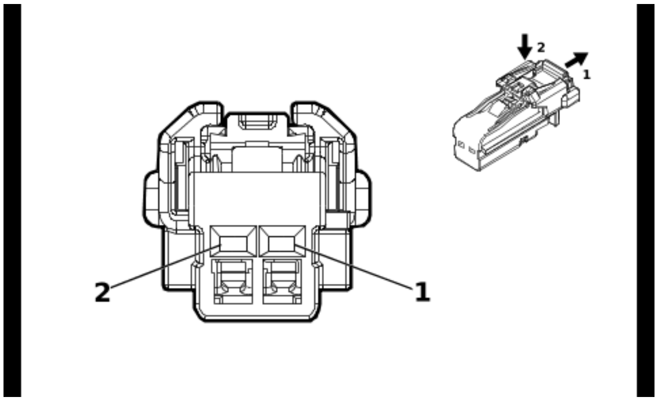
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

B150 Fuel Tank Pressure Sensor (N2M)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / GN	890	Fuel Tank Pressure Sensor Signal	I	—
2	0.5	BK / BN	6284	Fuel Tank Pressure Sensor Low Reference	I	—
3	0.5	YE / RD	2709	Fuel Tank Pressure Sensor 5V Reference	I	—

B153D Front Seat Belt Buckle - Driver FIGURESIO=6217433 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 6098-8988
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

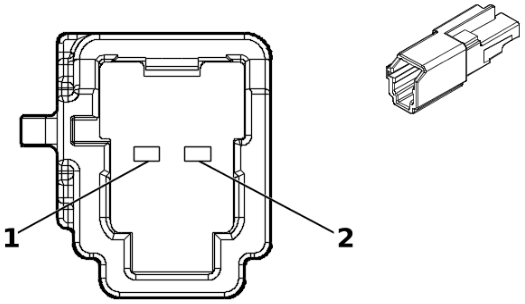
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B153D Front Seat Belt Buckle - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / OG	1363	Driver Seat Belt Switch Low Reference	I	—
2	0.5	OG / GY	2652	Driver Seat Belt Sensor Signal	I	—

B153LR Rear Seat Belt Buckle - Left FIGURESIO=6217434 Owner=Owner, Schematics LMD=26-Jan-2023



5355341

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35258943
Service Connector: 84815531
Description: 2-Way M 1.2 MCON Series(BK)

Terminal Part Information

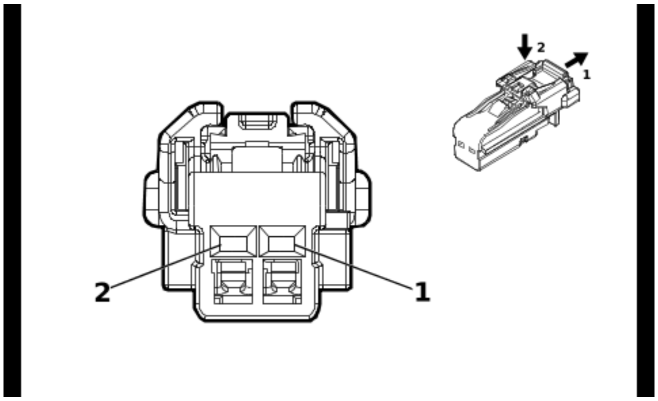
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

B153LR Rear Seat Belt Buckle - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / OG	1363	Driver Seat Belt Switch Low Reference	I	—
2	0.5	YE / OG	5161	Left Rear Seat Belt Switch Signal	I	—

B153P Front Seat Belt Buckle - Passenger

FIGURESIO=6217435 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 6098-8988
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

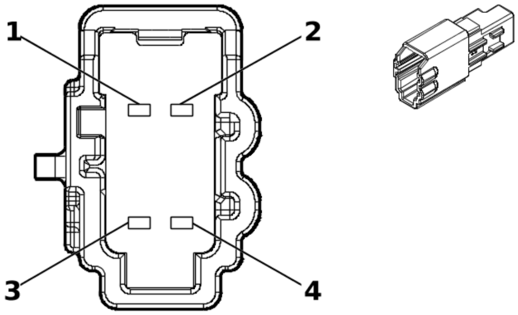
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B153P Front Seat Belt Buckle - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / OG	1363	Driver Seat Belt Switch Low Reference	I	—
2	0.5	OG / VT	1362	Passenger Seat Belt Switch Signal	I	—

B153RR Rear Seat Belt Buckle - Right

FIGURESIO=6217436 Owner=Owner, Schematics LMD=26-Jan-2023



5360963

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35264699
Service Connector: 84847258
Description: 4-Way M 1.2 MCON Series(BK)

Terminal Part Information

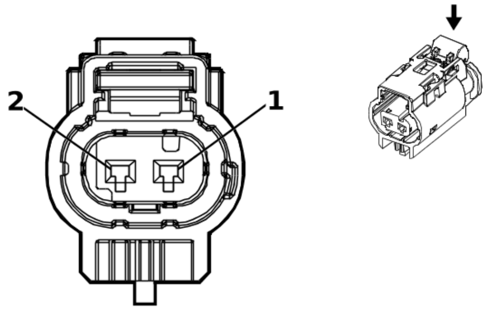
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

B153RR Rear Seat Belt Buckle - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / OG	1363	Driver Seat Belt Switch Low Reference	I	—
2	0.5	BU / OG	5163	Rear Center Seat Belt Switch Signal	I	—
3	0.5	BK / OG	1363	Driver Seat Belt Switch Low Reference	I	—
4	0.5	BN / OG	5162	Right Rear Seat Belt Switch Signal	I	—

B172LF Front Disc Brake Pad Wear Sensor - Left

FIGURESIO=6217437 Owner=Owner, Schematics LMD=26-Jan-2023



3747581

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33226772
Service Connector: 84727362
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

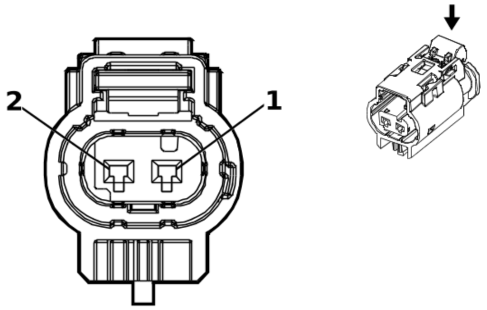
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B172LF Front Disc Brake Pad Wear Sensor - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / BU	1602	Front Brake Pad Wear Sensor Signal	I	—
2	0.75	BK / WH	1151	Signal Ground	I	NV8
	1	BK / WH	1151	Signal Ground	I	- NV8

B172LR Rear Disc Brake Pad Wear Sensor - Left

FIGURESIO=6217438 Owner=Owner, Schematics LMD=26-Jan-2023



3747581

Connector Part Information

Harness Type: Chassis Rear Wiring Harness Extension Harness
OEM Connector: 13583195
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

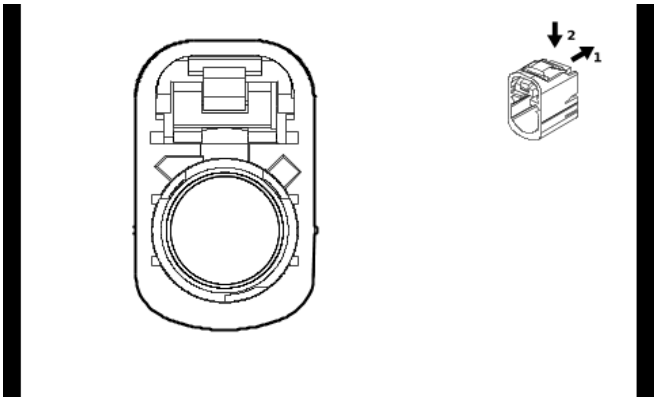
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B172LR Rear Disc Brake Pad Wear Sensor - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN / YE	1616	Rear Brake Pad Wear Sensor Signal	I	—
2	0.75	BK / WH	1751	Signal Ground	I	—

B174G Front View Driver Information Camera - Grille (UV2)

FIGURESIO=6257916 Owner=Owner, Schematics
LMD=26-Jan-2023



5920539

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13537644
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BK)

Terminal Part Information

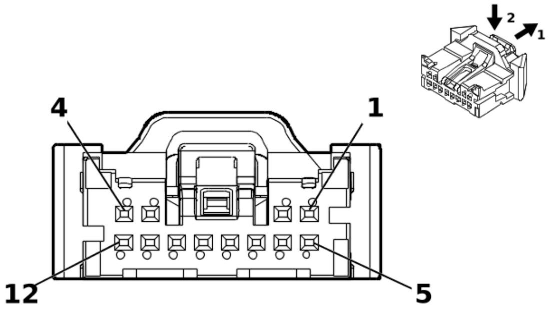
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

B174G Front View Driver Information Camera - Grille (UV2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
BK	—	—	Coax Cable	Coax Cable	I	—
Coax Cable	—	—	—	Not Occupied	—	—

B174W Front View Camera - Windshield (UEU)

FIGURESIO=6217439 Owner=Owner, Schematics LMD=26-Jan-2023



5360826

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 35068239
Service Connector: 13529935
Description: 12-Way F 050 CTS Series(BK)

Terminal Part Information

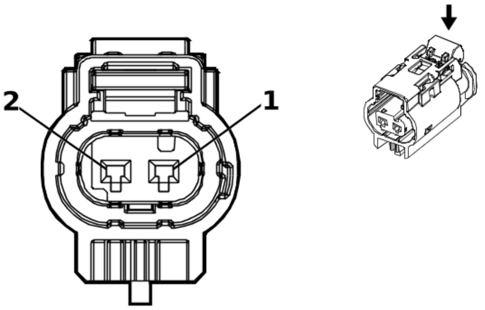
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	84944580	EL-35616-58 (BK)	EL-38125-58

B174W Front View Camera - Windshield (UEU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK / WH	851	Signal Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	RD / YE	240	Battery Positive Voltage	I	—
4	—	—	—	Not Occupied	—	—
5	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
6	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—
7	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
8	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—
9 - 12	—	—	—	Not Occupied	—	—

B193A Charge Air Cooler Air Temperature Sensor - Inlet (L5P)

FIGURESIO=6217440 Owner=Owner, Schematics LMD=26-Jan-2023



3747581

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13583195
Service Connector: 84727362
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

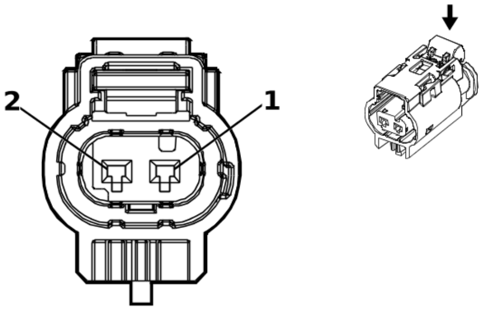
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B193A Charge Air Cooler Air Temperature Sensor - Inlet (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / GN	580	Engine Control Sensors Low Reference 2	I	—
2	0.5	GN	3683	Charge Air Cooler Inlet Temperature Sensor Signal	I	—

B193B Charge Air Cooler Air Temperature Sensor - Outlet (L5P)

FIGURESIO=6217441 Owner=Owner, Schematics LMD=26-Jan-2023



3747581

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33226772
Service Connector: 84727362
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

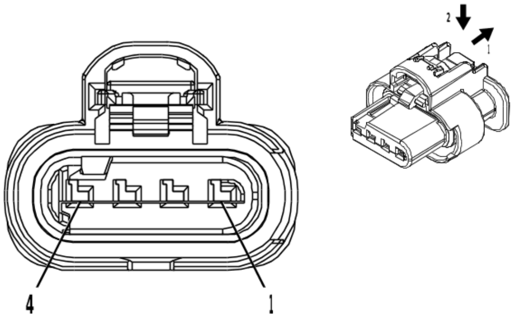
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B193B Charge Air Cooler Air Temperature Sensor - Outlet (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / BU	10597	Engine Control Sensors Low Reference 3	I	—
2	0.5	BN	3681	Charge Air Cooler Outlet Temperature Sensor Signal	I	—

B195A Nitrogen Oxides Sensor 1 (L5P)

FIGURESIO=6217442 Owner=Owner, Schematics LMD=26-Jan-2023



4210809

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33390897
Service Connector: 85518225
Description: 4-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

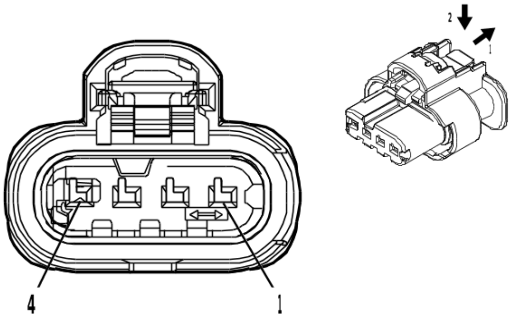
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B195A Nitrogen Oxides Sensor 1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
2	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	I	—
3	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	I	—
4	0.75	BK / WH	1151	Signal Ground	I	—

B195B Nitrogen Oxides Sensor 2 (L5P)

FIGURESIO=6217443 Owner=Owner, Schematics LMD=26-Jan-2023



4934614

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33367416
Service Connector: 85519071
Description: 4-Way F 1.2 MCON-CB Series, Sealed(BK)

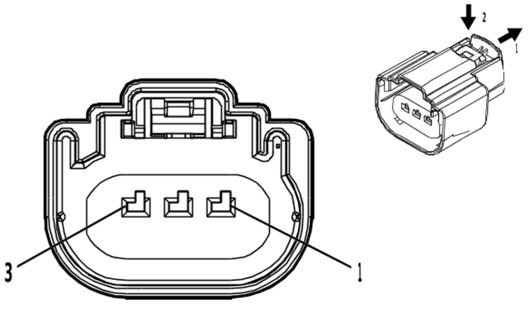
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B195B Nitrogen Oxides Sensor 2 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
2	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	I	—
3	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	I	—
4	1	BK / WH	1151	Signal Ground	I	—

B198 Fuel Composition Sensor (FHS) FIGURESIO=6217444 Owner=Owner, Schematics LMD=26-Jan-2023



4829227

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33362826
Service Connector: 19371197
Description: 3-Way F 1.5 MX Series, Sealed(GY)

Terminal Part Information

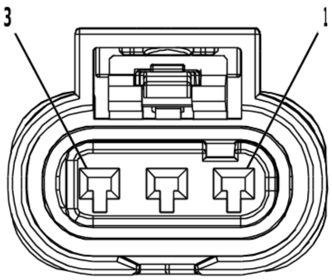
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

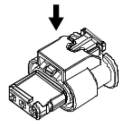
B198 Fuel Composition Sensor (FHS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
2	0.5	BK / GY	3802	Fuel Composition Sensor Low Reference	I	—
3	0.5	VT / BN	3803	Fuel Composition Sensor Signal	I	—

B212 Reductant Tank Fluid Sensor (L5P)

FIGURESIO=6257917 Owner=Owner, Schematics LMD=26-Jan-2023





2750649

Connector Part Information

Harness Type: Emission Reduction Fluid Tank Reservoir Wire Harness
OEM Connector: 13722729
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

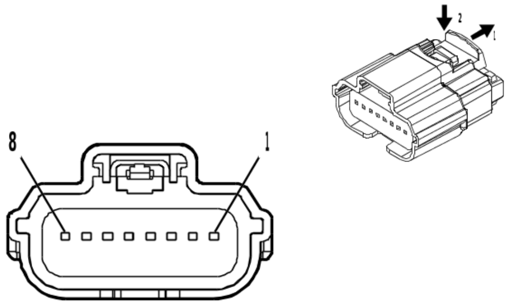
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (L-GN)	No Tool Required

B212 Reductant Tank Fluid Sensor (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / GY	7286	Diesel Exhaust Fluid Sensor Voltage Reference 2	I	—
2	0.5	YE / GN	7284	Diesel Exhaust Fluid Liquid Quality Temperature Signal	I	—
3	0.5	BK / YE	7285	Diesel Exhaust Fluid Liquid Quality Temperature Sensor Low Reference	I	—

B218L Side Obstacle Detection Control Module - Left

FIGURESIO=6217445 Owner=Owner, Schematics
LMD=26-Jan-2023



4708234

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 35192853
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 64 Series, Sealed(BK)

Terminal Part Information

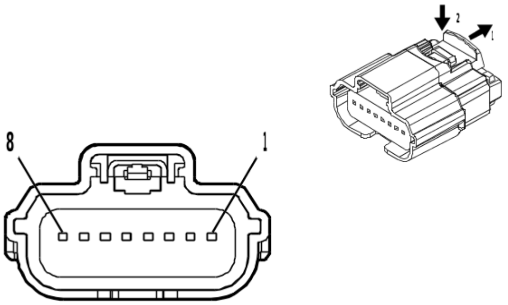
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B218L Side Obstacle Detection Control Module - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	4087	Private Serial Data Side Obstacle Detection CAN Bus [-] Serial Data	I	—
2	0.5	BU / VT	4088	Private Serial Data Side Obstacle Detection CAN Bus [+] Serial Data	I	—
3	0.5	BK / WH	1951	Signal Ground	I	—
4	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
5	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
6	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
7	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
8	0.5	RD / GN	6940	Battery Positive Voltage	I	—

B218R Side Obstacle Detection Control Module - Right

FIGURESIO=6217446 Owner=Owner, Schematics
LMD=26-Jan-2023



4708234

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 35200888
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 64 Series, Sealed(BK)

Terminal Part Information

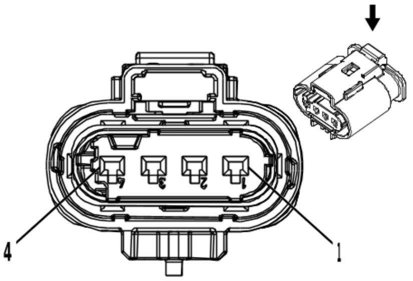
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

B218R Side Obstacle Detection Control Module - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	4087	Private Serial Data Side Obstacle Detection CAN Bus [-] Serial Data	I	—
2	0.5	BU / VT	4088	Private Serial Data Side Obstacle Detection CAN Bus [+] Serial Data	I	—
3	0.5	BK / WH	1951	Signal Ground	I	—
4	—	—	—	Not Occupied	—	—
5	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
6	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
7	—	—	—	Not Occupied	—	—
8	0.5	RD / GN	6940	Battery Positive Voltage	I	—

B302 Steering Gear Pressure Sensor (NV8)

FIGURESIO=6257918 Owner=Owner, Schematics LMD=26-Jan-2023



2717079

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13503575
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

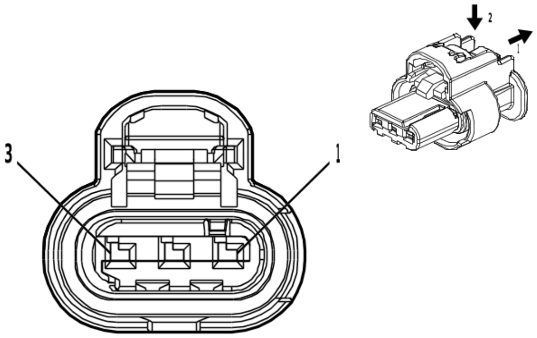
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

B302 Steering Gear Pressure Sensor (NV8)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	WH	3128	Hydrocarbon Injection Pressure Sensor Signal	I	—
2	—	GN	3129	Hydrocarbon Injection Pressure Sensor Low Reference	I	—
3	—	RD	3130	Hydrocarbon Injection Pressure Sensor 5V Reference	I	—
4	—	BK	8023	Hydraulic Pressure Sensor Low Reference	I	—

B306A Parking Assist Alarm Sensor - Front Left Outer

FIGURESIO=6217447 Owner=Owner, Schematics
LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

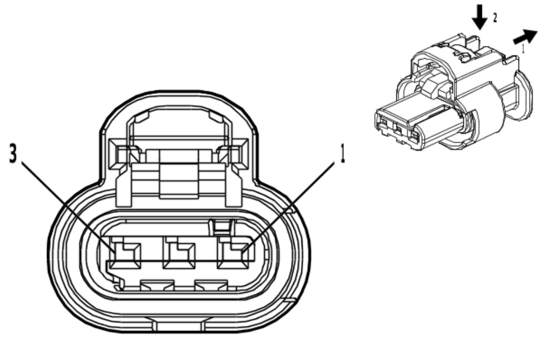
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B306A Parking Assist Alarm Sensor - Front Left Outer

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	6581	Front Parking Assist Display Control	I	—
2	0.5	VT / WH	5215	Left Front Outer Parking Assist Sensor	I	—
3	0.5	BK / BU	5214	Front Parking Assist Sensor Low Reference	I	—

B306B Parking Assist Alarm Sensor - Front Left Middle

FIGURESIO=6217448 Owner=Owner, Schematics
LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

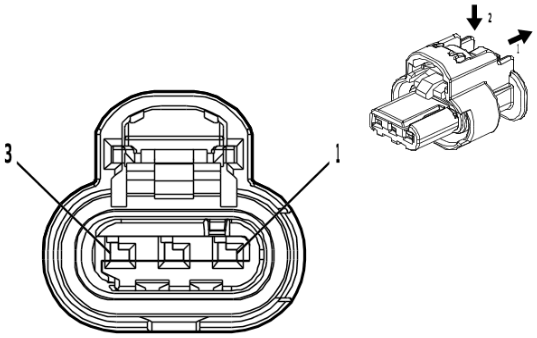
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B306B Parking Assist Alarm Sensor - Front Left Middle

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	6581	Front Parking Assist Display Control	I	—
2	0.5	YE / GY	5216	Left Front Middle Parking Assist Sensor	I	—
3	0.5	BK / BU	5214	Front Parking Assist Sensor Low Reference	I	—

B306C Parking Assist Alarm Sensor - Front Right Middle

FIGURESIO=6217449 Owner=Owner, Schematics
LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

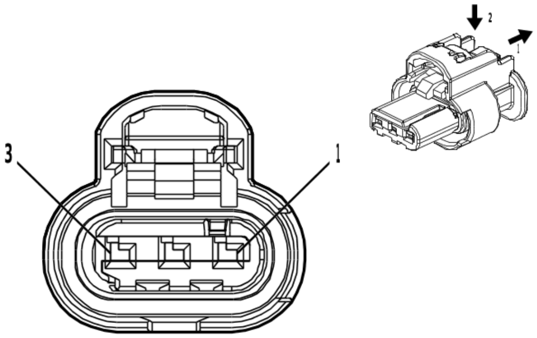
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B306C Parking Assist Alarm Sensor - Front Right Middle

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	6581	Front Parking Assist Display Control	I	—
2	0.5	VT / GY	5218	Right Front Middle Parking Assist Sensor	I	—
3	0.5	BK / BU	5214	Front Parking Assist Sensor Low Reference	I	—

B306D Parking Assist Alarm Sensor - Front Right Outer

FIGURESIO=6217450 Owner=Owner, Schematics
LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

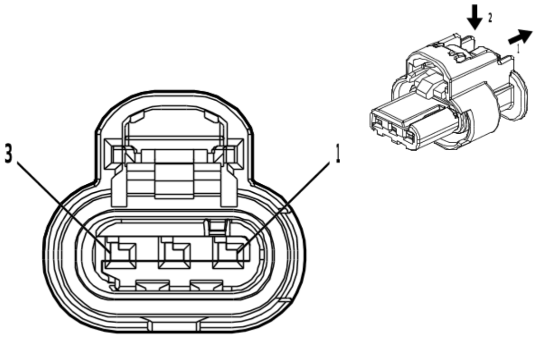
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B306D Parking Assist Alarm Sensor - Front Right Outer

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	6581	Front Parking Assist Display Control	I	—
2	0.5	WH / GY	5217	Right Front Outer Parking Assist Sensor	I	—
3	0.5	BK / BU	5214	Front Parking Assist Sensor Low Reference	I	—

B306E Parking Assist Alarm Sensor - Rear Left Outer

FIGURESIO=6217451 Owner=Owner, Schematics
LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

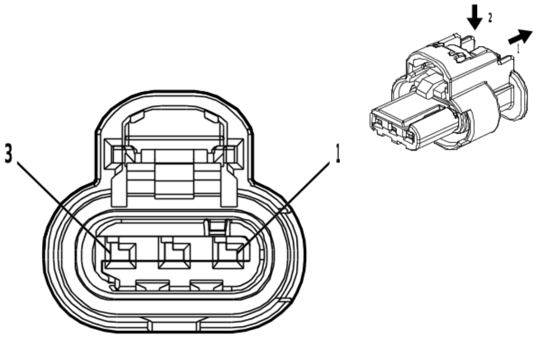
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B306E Parking Assist Alarm Sensor - Rear Left Outer

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / WH	2374	Object Sensor Voltage Reference	I	—
2	0.5	YE	2375	Left Rear Outer Parking Assist Sensor Signal	I	—
3	0.5	BK / GY	2379	Object Sensor Low Reference	I	—

B306F Parking Assist Alarm Sensor - Rear Left Middle

FIGURESIO=6217452 Owner=Owner, Schematics
LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

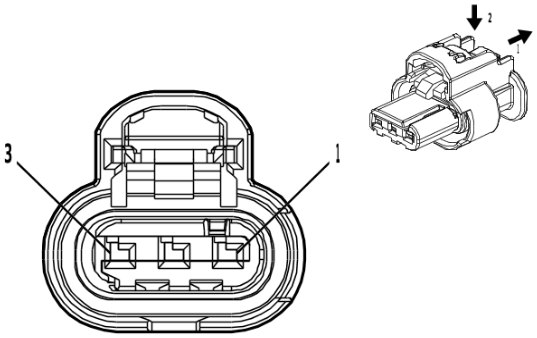
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B306F Parking Assist Alarm Sensor - Rear Left Middle

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / WH	2374	Object Sensor Voltage Reference	I	—
2	0.5	YE / BU	2376	Left Rear Middle Parking Assist Sensor Signal	I	—
3	0.5	BK / GY	2379	Object Sensor Low Reference	I	—

B306G Parking Assist Alarm Sensor - Rear Right Middle

FIGURESIO=6217453 Owner=Owner, Schematics
LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

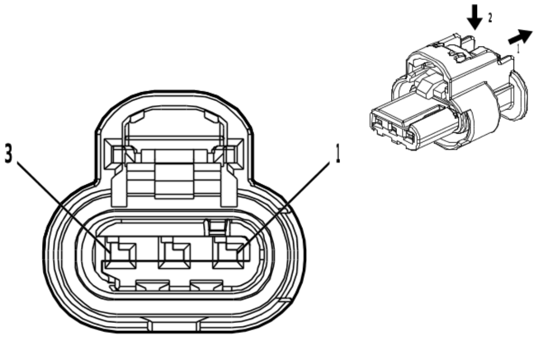
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B306G Parking Assist Alarm Sensor - Rear Right Middle

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / WH	2374	Object Sensor Voltage Reference	I	—
2	0.5	YE / WH	2377	Right Rear Middle Parking Assist Sensor Signal	I	—
3	0.5	BK / GY	2379	Object Sensor Low Reference	I	—

B306H Parking Assist Alarm Sensor - Rear Right Outer

FIGURESIO=6217454 Owner=Owner, Schematics
LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

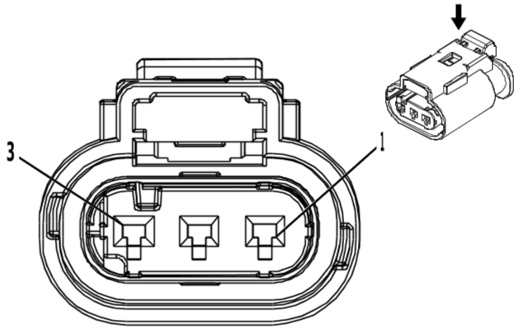
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B306H Parking Assist Alarm Sensor - Rear Right Outer

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / WH	2374	Object Sensor Voltage Reference	I	—
2	0.5	YE / VT	2378	Right Rear Outer Parking Assist Sensor Signal	I	—
3	0.5	BK / GY	2379	Object Sensor Low Reference	I	—

B310 Fuel Pressure and Temperature Sensor (L8T)

FIGURESIO=6217455 Owner=Owner, Schematics
LMD=26-Jan-2023



3240107

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Left
OEM Connector: 172007659
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

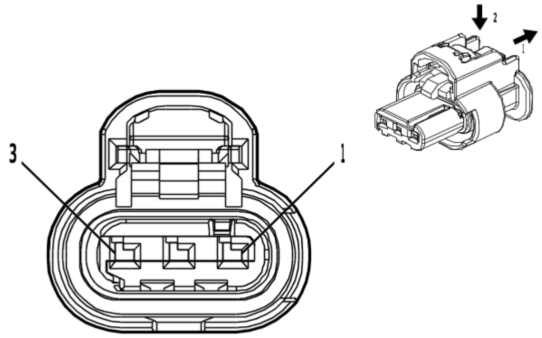
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B310 Fuel Pressure and Temperature Sensor (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / GN	548	Engine Control Sensors Low Reference 1	I	—
2	0.5	BU / WH	10782	Brake Pedal Emulator Module Travel Sensor 5 Volt Reference [2]	I	—
3	0.5	BN / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—

B345P Exhaust Pressure Differential Sensor - Particulate Filter

FIGURESIO=6217456 Owner=Owner, Schematics LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33358800
Service Connector: 86792094
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

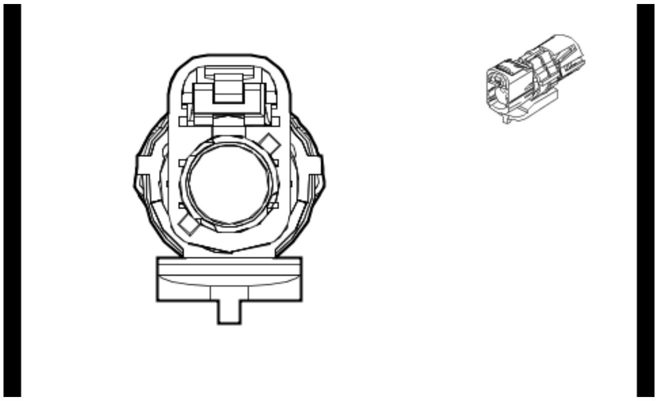
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B345P Exhaust Pressure Differential Sensor - Particulate Filter

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—
2	1	WH / BN	2363	Exhaust Pressure Sensor SENT 1 Signal	I	—
3	1	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—

B352 Video Display Inside Rearview Mirror Camera (DRZ)

FIGURESIO=6217457 Owner=Owner, Schematics
LMD=26-Jan-2023



5633894

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness COAX
OEM Connector: 35187049
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type, Sealed(BU)

Terminal Part Information

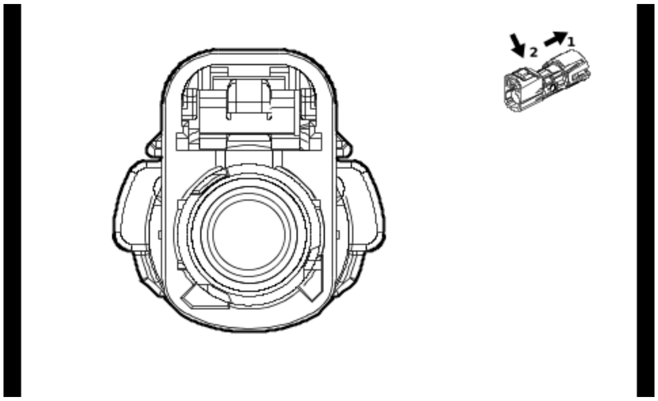
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

B352 Video Display Inside Rearview Mirror Camera (DRZ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Full Display Mirror Rear Camera Coaxial Video Signal	I	—

B352 Video Display Inside Rearview Mirror Camera (UVB)

FIGURESIO=6217459 Owner=Owner, Schematics
LMD=26-Jan-2023



5757455

Connector Part Information

Harness Type: Endgate Wiring Harness COAX
OEM Connector: 35187043
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(OG)

Terminal Part Information

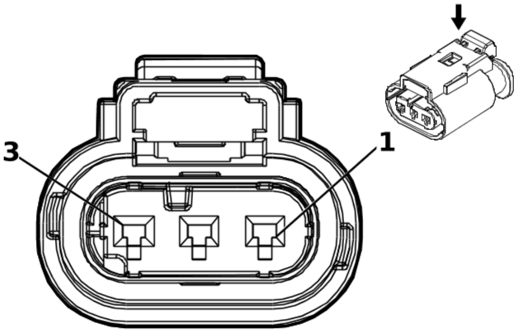
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

B352 Video Display Inside Rearview Mirror Camera (UVB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Rear Vision Camera Coaxial Video Signal	I	—

B359 Exhaust Gas Temperature Sensor Module (L5P)

FIGURESIO=6217460 Owner=Owner, Schematics
LMD=26-Jan-2023



5192187

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13503572
Service Connector: 84777453
Description: 3-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

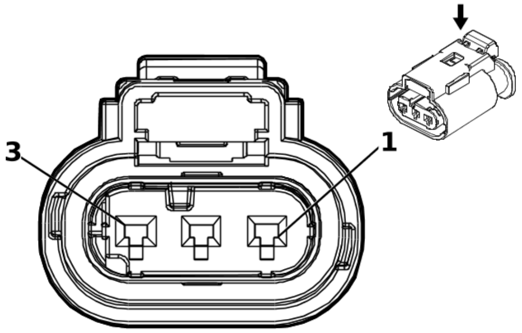
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B359 Exhaust Gas Temperature Sensor Module (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN	10289	Exhaust Gas Temperature Sensor SENT 1 Signal	I	—
2	0.5	BK / GN	580	Engine Control Sensors Low Reference 2	I	—
3	0.5	GY / RD	10667	Engine Control Sensors 5 Volt Reference	I	—

B359B Exhaust Gas Temperature Sensor Module 2 (L5P)

FIGURESIO=6217461 Owner=Owner, Schematics
LMD=26-Jan-2023



5192187

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35129355
Service Connector: 84777453
Description: 3-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

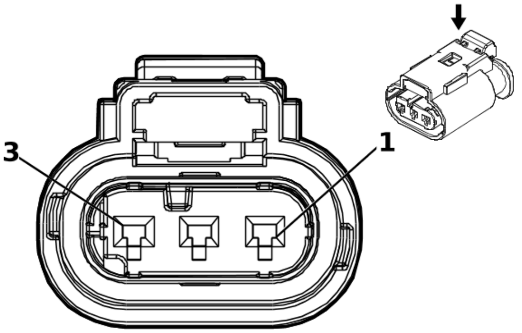
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B359B Exhaust Gas Temperature Sensor Module 2 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	10290	Exhaust Gas Temperature Sensor SENT 2 Signal	I	—
2	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—
3	0.5	YE / RD	10595	Engine Control Vehicle Sensors 5 Volt Reference 2	I	—

B359C Exhaust Gas Temperature Sensor Module 3 (L5P)

FIGURESIO=6217462 Owner=Owner, Schematics
LMD=26-Jan-2023



5192187

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35129355
Service Connector: 84777453
Description: 3-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

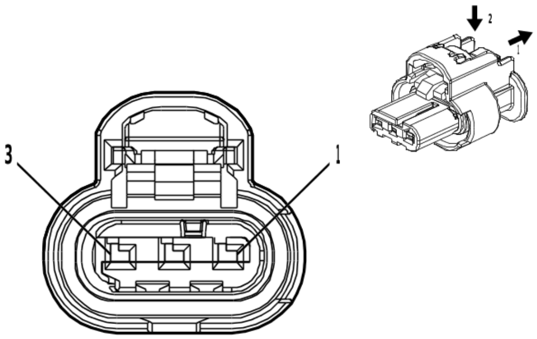
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B359C Exhaust Gas Temperature Sensor Module 3 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	10291	Exhaust Gas Temperature Sensor SENT 3 Signal	I	—
2	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—
3	0.5	YE / RD	10595	Engine Control Vehicle Sensors 5 Volt Reference 2	I	—

B394 Evaporative Emission Canister Purge System Pressure Sensor

FIGURESIO=6217463 Owner=Owner, Schematics LMD=26-Jan-2023



4778903

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33358808
Service Connector: 86792095
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

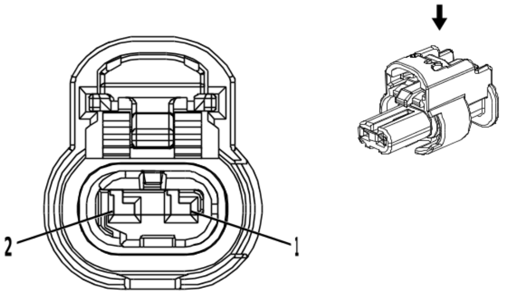
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

B394 Evaporative Emission Canister Purge System Pressure Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE / GY	11029	Canister Vapor Pressure Sensor Signal	I	—
2	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—
3	0.5	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—

E2LF Front Side Marker Lamp - Left

FIGURESIO=6257920 Owner=Owner, Schematics LMD=26-Jan-2023



4335931

Connector Part Information

Harness Type: Front Side Marker Lamp Wiring Harness
OEM Connector: 13512366
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E2LF Front Side Marker Lamp - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	150	Ground	I	—
2	—	WH / YE	1254	Left Front Park Lamp Control	I	—

E2LRB Side Marker Bulb - Left Rear

—

Connector Part Information

Harness Type: Tail Lamp Wiring Harness - Left
OEM Connector: EEM0098-LGY
Service Connector: Service by Harness - See Part Catalog
Description: Bulb Socket

Terminal Part Information

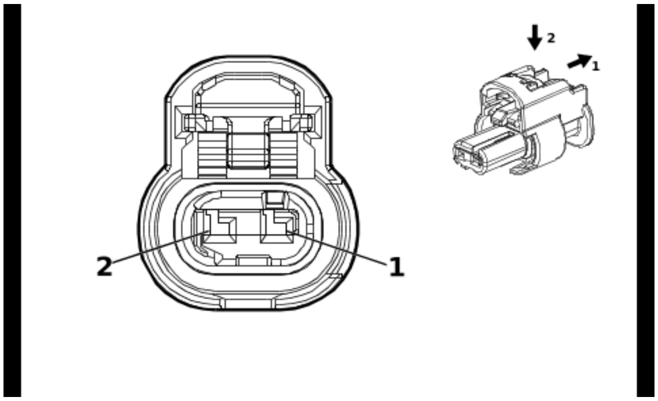
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-3 (GY)	No Tool Required

E2LRB Side Marker Bulb - Left Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / BN	6993	Left Rear Park Lamp Control	I	—
2	0.75 0.75	BK BK	1951 1951	Signal Ground Signal Ground	I	— —

E2LRW Rear Side Marker Lamp - Left Wheel Opening Molding

FIGURESIO=6257924 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

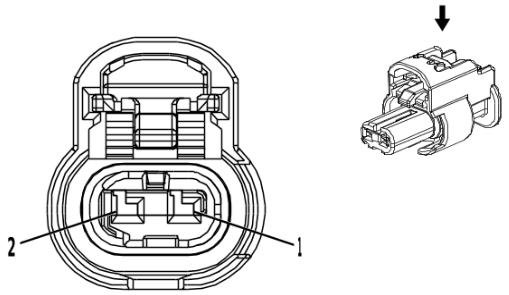
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E2LRW Rear Side Marker Lamp - Left Wheel Opening Molding

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1850	Ground	I	—
2	—	BN / GN	4246	Identification Lamp Control	I	—

E2RF Front Side Marker Lamp - Right

FIGURESIO=6257926 Owner=Owner, Schematics LMD=26-Jan-2023



4335931

Connector Part Information

Harness Type: Front Side Marker Lamp Wiring Harness
OEM Connector: 13512366
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E2RF Front Side Marker Lamp - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	650	Ground	I	—
2	—	BU / GN	1253	Right Front Park Lamp Control	I	—

E2RRB Side Marker Bulb - Right Rear

—

Connector Part Information

Harness Type: Tail Lamp Wiring Harness - Right
OEM Connector: EEM0098-LGY
Service Connector: Service by Harness - See Part Catalog
Description: Bulb Socket

Terminal Part Information

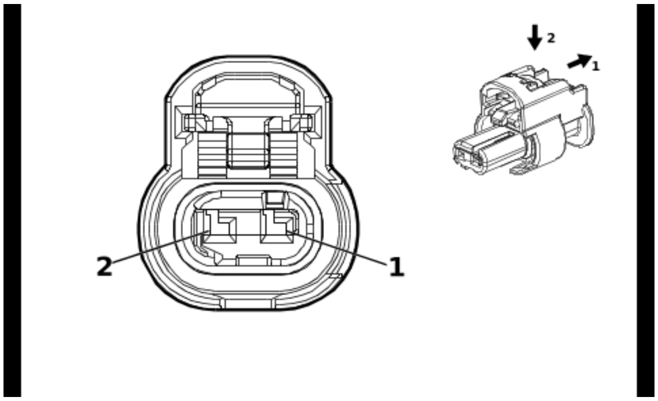
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-3 (GY)	No Tool Required

E2RRB Side Marker Bulb - Right Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	0.75 0.75	BK BK / BK	1850 1850	Ground Ground	I	— —

E2RRW Rear Side Marker Lamp - Right Wheel Opening Molding

FIGURESIO=6257930 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

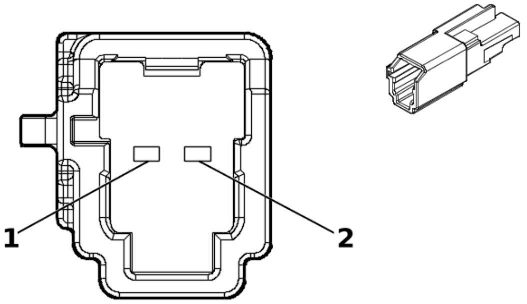
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E2RRW Rear Side Marker Lamp - Right Wheel Opening Molding

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1850	Ground	I	—
2	—	BN / GN	4246	Identification Lamp Control	I	—

E3A Front Clearance Lamp - Roof Left Outer

FIGURESIO=6217464 Owner=Owner, Schematics LMD=26-Jan-2023



5355341

Connector Part Information

Harness Type: Roof Wiring Harness
OEM Connector: 35258943
Service Connector: 84815531
Description: 2-Way M 1.2 MCON Series(BK)

Terminal Part Information

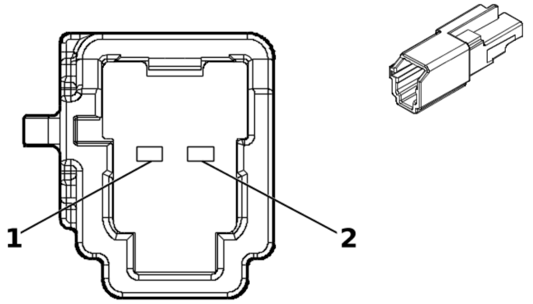
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

E3A Front Clearance Lamp - Roof Left Outer

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1050	Ground	I	—
2	0.5	BN / GN	4246	Identification Lamp Control	I	—

E3E Front Clearance Lamp - Roof Right Outer

FIGURESIO=6217465 Owner=Owner, Schematics LMD=26-Jan-2023



5355341

Connector Part Information

Harness Type: Roof Wiring Harness
OEM Connector: 35258943
Service Connector: 84815531
Description: 2-Way M 1.2 MCON Series(BK)

Terminal Part Information

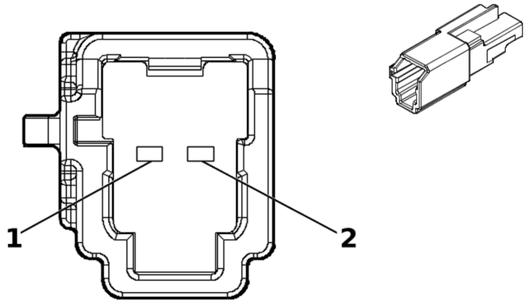
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required
II	Not required	No Tool Required	No Tool Required

E3E Front Clearance Lamp - Roof Right Outer

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1050	Ground	I	—
2	0.5	BN / GN	4246	Identification Lamp Control	II	—

E3FA Front Identification Lamp

FIGURESIO=6217466 Owner=Owner, Schematics LMD=26-Jan-2023



5355341

Connector Part Information

Harness Type: Roof Wiring Harness
OEM Connector: 35258943
Service Connector: 84815531
Description: 2-Way M 1.2 MCON Series(BK)

Terminal Part Information

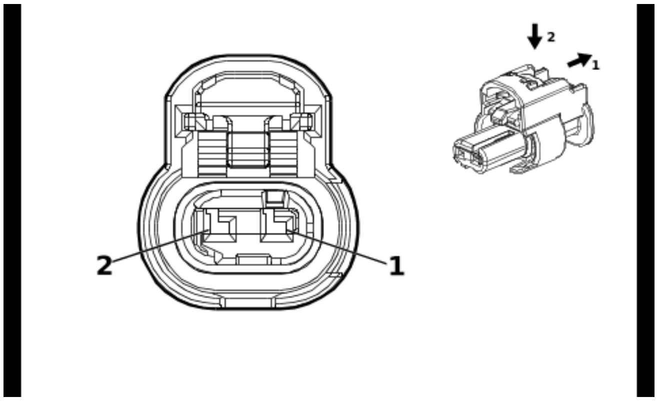
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

E3FA Front Identification Lamp

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1050	Ground	I	—
2	0.5	BN / GN	4246	Identification Lamp Control	I	—

E3LF Rear Clearance Lamp - Fender Left Front

FIGURESIO=6257932 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

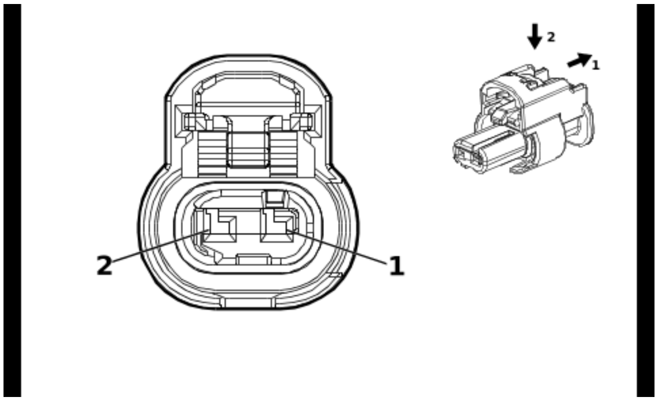
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E3LF Rear Clearance Lamp - Fender Left Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1850	Ground	I	—
2	—	BN / GN	4246	Identification Lamp Control	I	—

E3LR Rear Clearance Lamp - Fender Left Rear

FIGURESIO=6257934 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

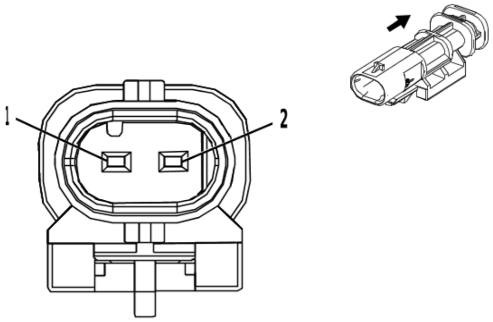
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E3LR Rear Clearance Lamp - Fender Left Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1850	Ground	I	—
2	—	BN / GN	4246	Identification Lamp Control	I	—

E3RA Rear Identification Lamp

FIGURESIO=6257936 Owner=Owner, Schematics LMD=26-Jan-2023



2474755

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13591337
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series, Sealed(BK)

Terminal Part Information

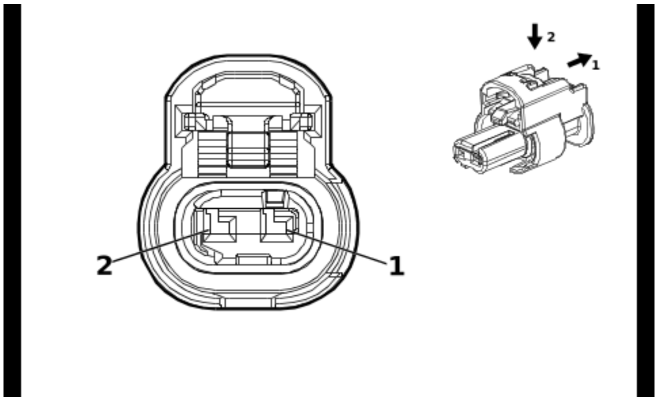
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E3RA Rear Identification Lamp

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1850	Ground	I	—
2	—	BN / GN	4246	Identification Lamp Control	I	—

E3RF Rear Clearance Lamp - Fender Right Front

FIGURESIO=6257938 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

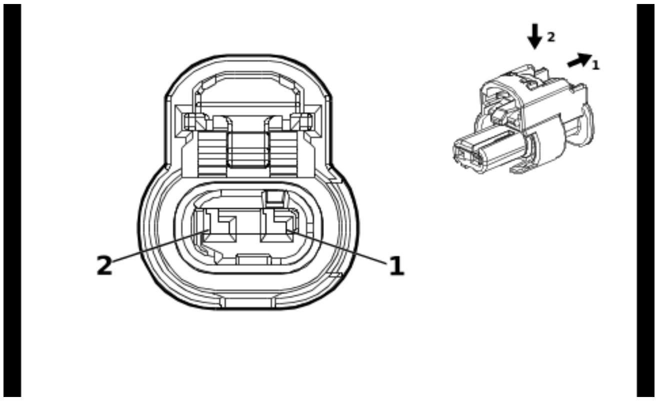
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E3RF Rear Clearance Lamp - Fender Right Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1850	Ground	I	—
2	—	BN / GN	4246	Identification Lamp Control	I	—

E3RR Rear Clearance Lamp - Fender Right Rear

FIGURESIO=6257940 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E3RR Rear Clearance Lamp - Fender Right Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1850	Ground	I	—
2	—	BN / GN	4246	Identification Lamp Control	I	—

E5A Backup Bulb - Left

—

Connector Part Information

Harness Type: Tail Lamp Wiring Harness - Left
OEM Connector: EEM0323-BLK
Service Connector: Service by Harness - See Part Catalog
Description: Bulb Socket

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-3 (GY)	No Tool Required

E5A Backup Bulb - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN	24	Backup Lamp Control	I	—
2	0.75	BK / BK	1951	Signal Ground	I	—

E5B Backup Bulb - Right

—

Connector Part Information

Harness Type: Tail Lamp Wiring Harness - Right
OEM Connector: EEM0323-BLK
Service Connector: Service by Harness - See Part Catalog
Description: Bulb Socket

Terminal Part Information

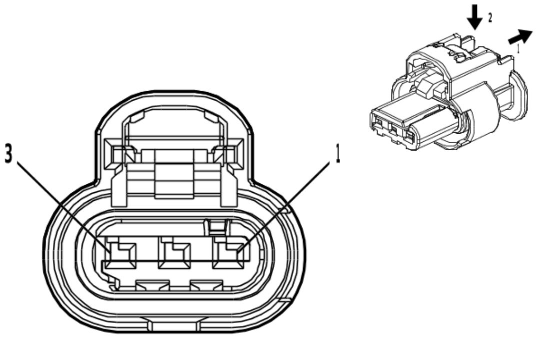
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-3 (GY)	No Tool Required

E5B Backup Bulb - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN / GN	24	Backup Lamp Control	I	—
2	0.75	BK	1850	Ground	I	—

E6A High Mount Stop and Cargo Lamp - Crew Cab and Double Cab (UVO)

FIGURESIO=6217467 Owner=Owner, Schematics LMD=30-Jan-2023



4581126

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

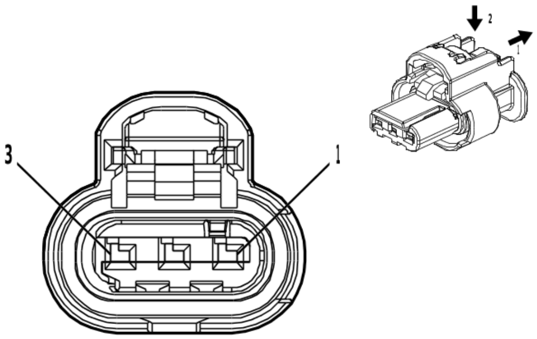
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

E6A High Mount Stop and Cargo Lamp - Crew Cab and Double Cab (UVO)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH / VT	1430	Exterior Courtesy Lamp Control	I	—
2	0.35	VT / WH	5065	Stop Lamp Relay Coil Control	I	—
3	0.35	BK	1050	Ground	I	—

E6A High Mount Stop and Cargo Lamp - Crew Cab and Double Cab (- UVO)

FIGURESIO=6217468 Owner=Owner, Schematics LMD=30-Jan-2023



4581126

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness
OEM Connector: 33358800
Service Connector: Service by Harness - See Part Catalog
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

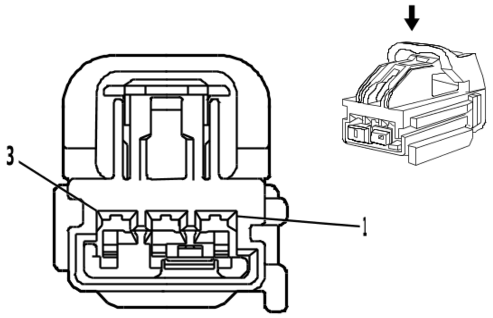
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

E6A High Mount Stop and Cargo Lamp - Crew Cab and Double Cab (- UVO)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / VT	1430	Exterior Courtesy Lamp Control	I	—
2	0.5	BN / YE	820	Center High Mounted Stop Lamp Supply Voltage	I	—
3	0.5	BK	1050	Ground	I	—

E6A High Mount Stop and Cargo Lamp - Regular Cab

FIGURESIO=6217469 Owner=Owner, Schematics
LMD=26-Jan-2023



1787799

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 10847008
Service Connector: 86825460
Description: 3-Way F 1.5 Kaizen Series(L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

E6A High Mount Stop and Cargo Lamp - Regular Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / VT	1430	Exterior Courtesy Lamp Control	I	—
2	0.5	BU / BK	1053	Center High Mounted Stop Lamp Control 3	I	—
3	1	BK	1050	Ground	I	—

E6B High Mount Stop Lamp Bulb - Regular Cab

—

Connector Part Information

Harness Type: High Mount Stop Lamp Wiring Harness
OEM Connector: 02075-01
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way

Terminal Part Information

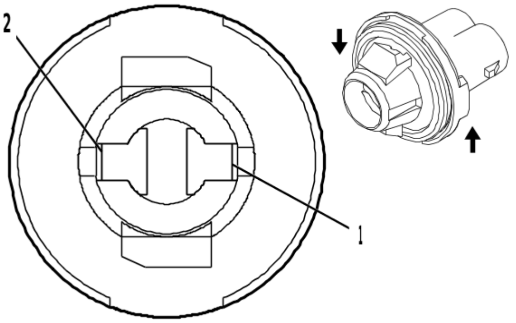
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	Not Available	No Tool Required

E6B High Mount Stop Lamp Bulb - Regular Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	RD	1053	Center High Mounted Stop Lamp Control 3	I	—
B	0.75	BK	1050	Ground	I	—
	0.75	BK	1050	Ground		—

E7 Rear License Plate Lamp (ZW9)

FIGURESIO=6257948 Owner=Owner, Schematics LMD=26-Jan-2023



5153536

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 15324946
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F Lamp Socket Wedge Base, Type W-2(D-GY)

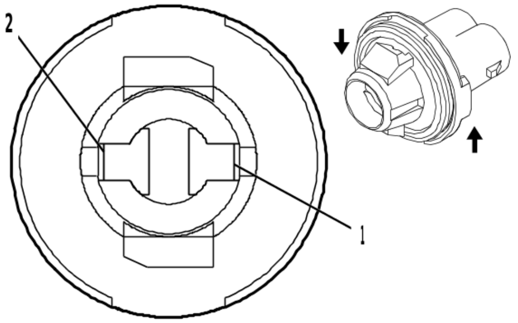
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E7 Rear License Plate Lamp (ZW9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	GN / YE	6846	Rear License Plate Lamp Control	I	—
2	—	BK	1850	Ground	I	—

E7L Rear License Plate Lamp - Left FIGURESIO=6217470 Owner=Owner, Schematics LMD=26-Jan-2023



5153536

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 15324946
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F Lamp Socket Wedge Base, Type W-2(D-GY)

Terminal Part Information

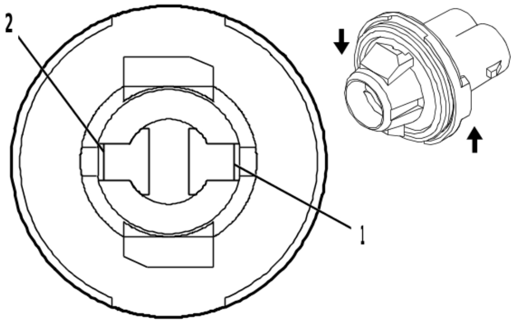
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E7L Rear License Plate Lamp - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / YE	6846	Rear License Plate Lamp Control	I	—
2	0.5	BK	1850	Ground	I	—

E7R Rear License Plate Lamp - Right

FIGURESIO=6217471 Owner=Owner, Schematics LMD=26-Jan-2023



5153536

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 15324946
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F Lamp Socket Wedge Base, Type W-2(D-GY)

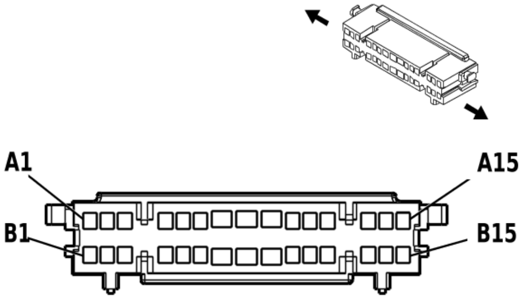
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E7R Rear License Plate Lamp - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / YE	6846	Rear License Plate Lamp Control	I	—
2	0.5	BK	1850	Ground	I	—

E8ZL Assist Step Lamp - Left (BRS) FIGURESIO=6257951 Owner=Owner, Schematics LMD=26-Jan-2023



655763

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13583926
Service Connector: Service by Harness - See Part Catalog
Description: 30-Way F 150, 280 GT FBT Series(BK)

Terminal Part Information

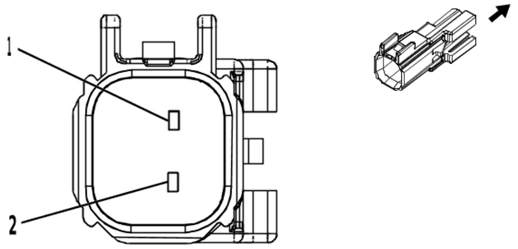
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E8ZL Assist Step Lamp - Left (BRS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	—	BK	1850	Ground	I	—
A1 - B15	—	—	—	Not Occupied	—	—

E8ZR Assist Step Lamp - Right (BRS)

FIGURESIO=6257953 Owner=Owner, Schematics LMD=26-Jan-2023



3271068

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13503926
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.5 Series, Sealed(BK)

Terminal Part Information

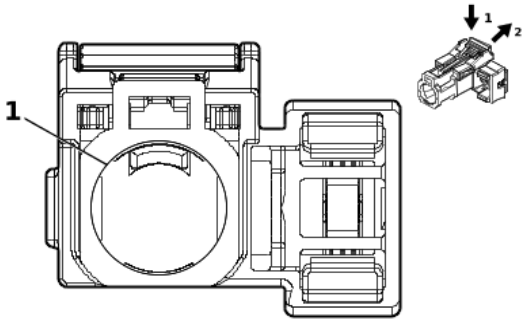
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E8ZR Assist Step Lamp - Right (BRS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	—	BK	1850	Ground	I	—

E12A Glow Plug 1 (L5P)

FIGURESIO=6217472 Owner=Owner, Schematics LMD=26-Jan-2023



6166047

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13551815
Service Connector: Service by Cable - See Part Catalog
Description: 1-Way F RK4 Receptacle(BK)

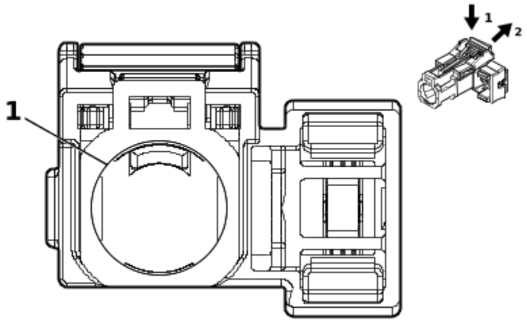
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E12A Glow Plug 1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY / BU	1581	Glow Plug 1 Control	I	—

E12B Glow Plug 2 (L5P) FIGURESIO=6217473 Owner=Owner, Schematics LMD=26-Jan-2023



6166047

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13551815
Service Connector: Service by Cable - See Part Catalog
Description: 1-Way F RK4 Receptacle(BK)

Terminal Part Information

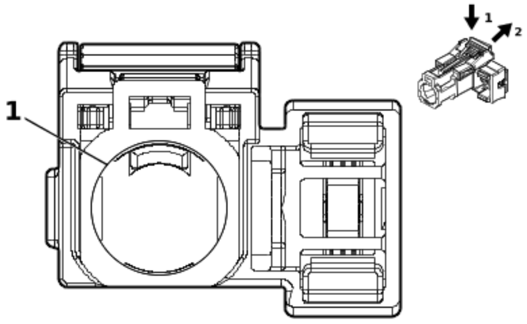
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E12B Glow Plug 2 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY / BN	1582	Glow Plug 2 Control	I	—

E12C Glow Plug 3 (L5P)

FIGURESIO=6217474 Owner=Owner, Schematics LMD=26-Jan-2023



6166047

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13551815
Service Connector: Service by Cable - See Part Catalog
Description: 1-Way F RK4 Receptacle(BK)

Terminal Part Information

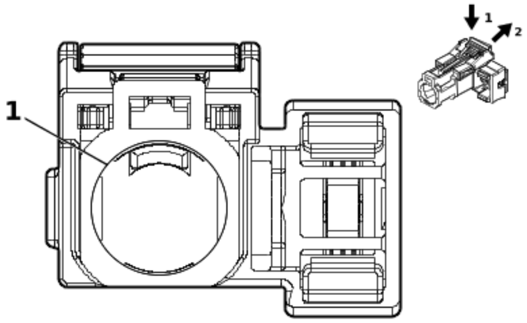
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E12C Glow Plug 3 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY / GN	1583	Glow Plug 3 Control	I	—

E12D Glow Plug 4 (L5P)

FIGURESIO=6217475 Owner=Owner, Schematics LMD=26-Jan-2023



6166047

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13551815
Service Connector: Service by Cable - See Part Catalog
Description: 1-Way F RK4 Receptacle(BK)

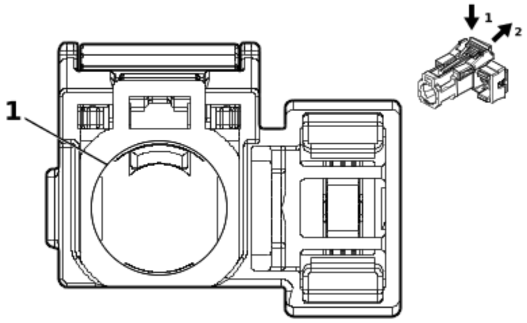
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E12D Glow Plug 4 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY / YE	1584	Glow Plug 4 Control	I	—

E12E Glow Plug 5 (L5P) FIGURESIO=6217476 Owner=Owner, Schematics LMD=26-Jan-2023



6166047

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13551815
Service Connector: Service by Cable - See Part Catalog
Description: 1-Way F RK4 Receptacle(BK)

Terminal Part Information

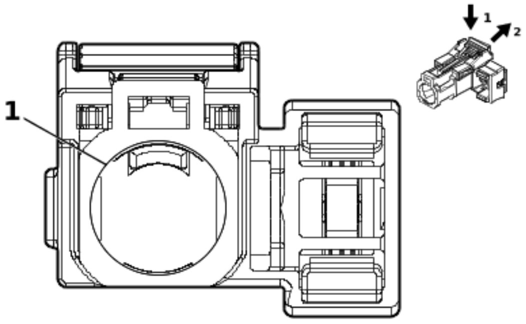
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E12E Glow Plug 5 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY / WH	1585	Glow Plug 5 Control	I	—

E12F Glow Plug 6 (L5P)

FIGURESIO=6217477 Owner=Owner, Schematics LMD=26-Jan-2023



6166047

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13551815
Service Connector: Service by Cable - See Part Catalog
Description: 1-Way F RK4 Receptacle(BK)

Terminal Part Information

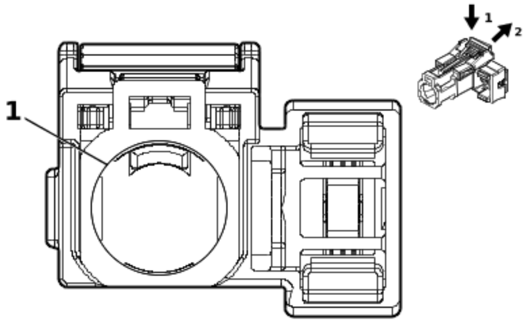
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E12F Glow Plug 6 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY / VT	1586	Glow Plug 6 Control	I	—

E12G Glow Plug 7 (L5P)

FIGURESIO=6217478 Owner=Owner, Schematics LMD=26-Jan-2023



6166047

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13551815
Service Connector: Service by Cable - See Part Catalog
Description: 1-Way F RK4 Receptacle(BK)

Terminal Part Information

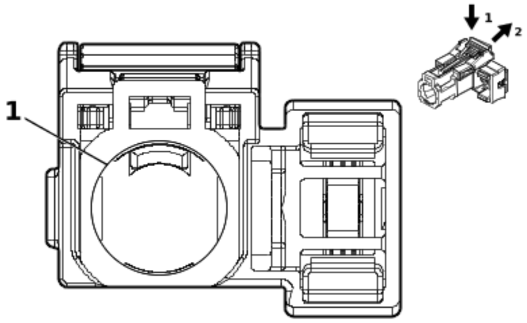
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E12G Glow Plug 7 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	WH / BK	1587	Glow Plug 7 Control	I	—

E12H Glow Plug 8 (L5P)

FIGURESIO=6217479 Owner=Owner, Schematics LMD=26-Jan-2023



6166047

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13551815
Service Connector: Service by Cable - See Part Catalog
Description: 1-Way F RK4 Receptacle(BK)

Terminal Part Information

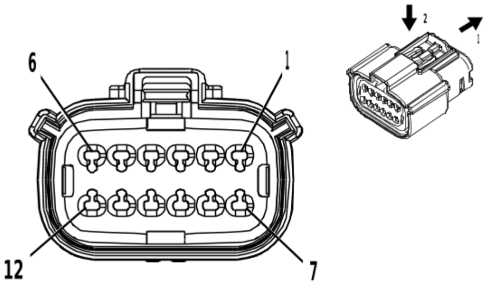
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E12H Glow Plug 8 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	WH / BU	1588	Glow Plug 8 Control	I	—

E13LA Front Headlamp - Left X1

FIGURESIO=6217480 Owner=Owner, Schematics LMD=26-Jan-2023



2871860

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33362189
Service Connector: 19352907
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217

E13LA Front Headlamp - Left X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	150	Ground	I	—
2	1.5	RD / WH	640	Battery Positive Voltage	I	—
3	0.5	YE	712	Left Headlamp Low Beam Control	I	—
4	0.5	WH	711	Left Headlamp High Beam Control	I	—
5	0.35	GY / BU	7538	Left Front DRL Control	I	—
6	0.5	WH / YE	1254	Left Front Park Lamp Control	I	—
7	0.5	BU / WH	1314	Left Front Turn Signal Lamp Control	I	—
8	0.35	VT / BK	6568	Front Turn Signal Lamp Feedback Signal	I	—
9	0.5	YE / GN	2024	Animation Lighting Control	I	—
10	0.5	GN / VT	1315	Right Front Turn Signal Lamp Control	I	—
11 - 12	—	—	—	Not Occupied	—	—

E13LA Front Headlamp - Left X2

—

Connector Part Information

Harness Type: Front Side Marker Lamp Wiring Harness
OEM Connector: 13526832
Service Connector: Service by Harness - See Part Catalog
Description: —

Terminal Part Information

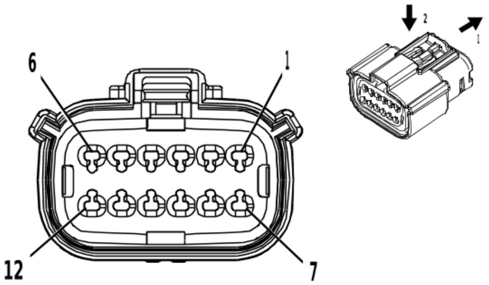
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E13LA Front Headlamp - Left X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	150	Ground	I	—
5	—	WH / YE	1254	Left Front Park Lamp Control	I	—

E13RA Front Headlamp - Right X1

FIGURESIO=6217481 Owner=Owner, Schematics LMD=26-Jan-2023



2871860

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33362189
Service Connector: 19352907
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217

E13RA Front Headlamp - Right X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	650	Ground	I	—
2	1.5	RD / YE	740	Battery Positive Voltage	I	—
3	0.5	YE	312	Right Headlamp Low Beam Control	I	—
4	0.5	WH	311	Right Headlamp High Beam Control	I	—
5	0.35	BU / BN	7539	Right Front DRL Control	I	—
6	0.5	BU / GN	1253	Right Front Park Lamp Control	I	—
7	0.5	GN / VT	1315	Right Front Turn Signal Lamp Control	I	—
8	0.35	WH / YE	7545	Right Front Turn Signal Lamp Feedback Signal	I	—
9	0.5	YE / GN	2024	Animation Lighting Control	I	—
10	0.5	BU / WH	1314	Left Front Turn Signal Lamp Control	I	—
11 - 12	—	—	—	Not Occupied	—	—

E13RA Front Headlamp - Right X2

—

Connector Part Information

Harness Type: Front Side Marker Lamp Wiring Harness
OEM Connector: 13526832
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way

Terminal Part Information

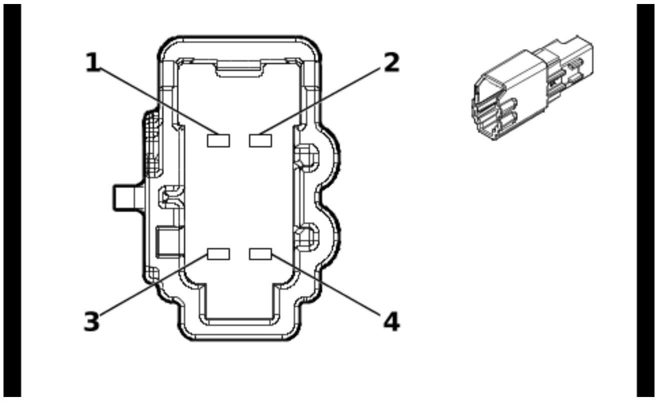
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E13RA Front Headlamp - Right X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	650	Ground	I	—
5	—	BU / GN	1253	Right Front Park Lamp Control	I	—

E14A Front Seat Back Heater - Driver (KA1)

FIGURESIO=6217482 Owner=Owner, Schematics LMD=26-Jan-2023



5423974

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 6098-9049
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(GY)

Terminal Part Information

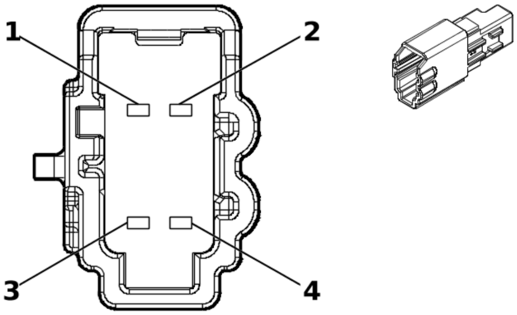
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

E14A Front Seat Back Heater - Driver (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	2432	Driver Seat Back Heating Element Control	I	—
2	0.5	BU	2425	Driver Seat Back Heating Temperature Sensor Signal	I	—
3	0.5	BK / YE	2080	Driver Heated Seat Thermistor Low Reference	I	—
4	0.75	BN / BK	2078	Driver Seat Heating Element Low Reference	I	—

E14B Front Seat Cushion Heater - Driver (KA1)

FIGURESIO=6217483 Owner=Owner, Schematics LMD=26-Jan-2023



5360963

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 6098-9046
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(BK)

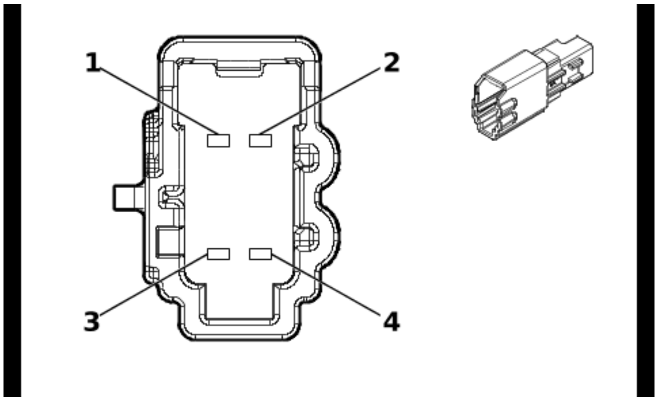
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

E14B Front Seat Cushion Heater - Driver (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / VT	2077	Driver Seat Heating Element Control	I	—
2	0.5	YE / GY	2079	Driver Seat Heating Temperature Sensor Signal	I	—
3	0.5	BK / YE	2080	Driver Heated Seat Thermistor Low Reference	I	—
4	0.75	BN / BK	2078	Driver Seat Heating Element Low Reference	I	—

E14C Front Seat Back Heater - Passenger (KA1) FIGURESIO=6217484 Owner=Owner, Schematics LMD=26-Jan-2023



5423974

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 6098-9049
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(GY)

Terminal Part Information

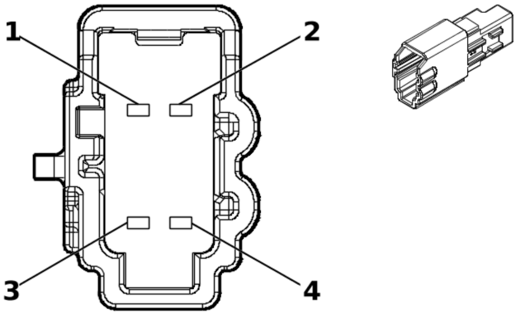
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

E14C Front Seat Back Heater - Passenger (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH / BN	2481	Passenger Seat Back Heating Element Control	I	—
2	0.5	WH / BU	2436	Passenger Seat Back Heating Temperature Sensor Signal	I	—
3	0.5	BK / GN	2482	Passenger Heated Back Thermistor Low Reference	I	—
4	0.75	GY / BK	2480	Passenger Seat Heating Element Low Reference	I	—

E14D Front Seat Cushion Heater - Passenger (KA1)

FIGURESIO=6217485 Owner=Owner, Schematics
LMD=26-Jan-2023



5360963

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 6098-9046
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(BK)

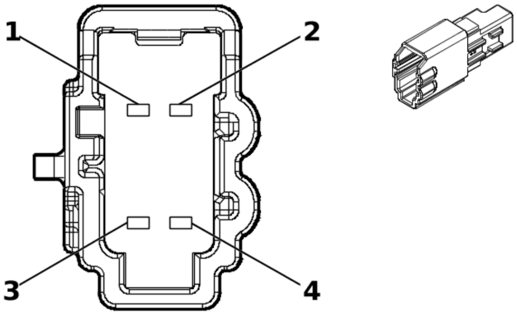
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

E14D Front Seat Cushion Heater - Passenger (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / BU	2479	Passenger Seat Heating Element Control	I	—
2	0.5	WH / GY	2434	Passenger Seat Heating Temperature Sensor Signal	I	—
3	0.5	BK / GY	2435	Passenger Heated Seat Thermistor Low Reference	I	—
4	0.75	GY / BK	2480	Passenger Seat Heating Element Low Reference	I	—

E14F Rear Seat Cushion Heater - Left Rear (KA6) FIGURESIO=6217486 Owner=Owner, Schematics LMD=26-Jan-2023



5360963

Connector Part Information

Harness Type: Rear Seat Heater Control Wiring Harness
OEM Connector: 6098-9046
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(BK)

Terminal Part Information

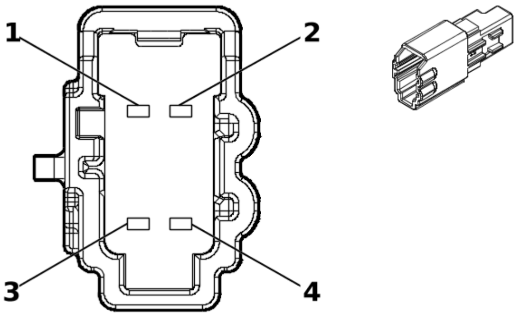
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

E14F Rear Seat Cushion Heater - Left Rear (KA6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY	2294	Left Rear Seat Cushion Heating Element Control	I	—
2	0.75	WH / BU	7047	Left Rear Seat Cushion Temperature Sensor Signal	I	—
3	0.75	BU / WH	7048	Left Rear Cushion Thermistor Feedback Signal	I	—
4	0.75	BN / BK	2295	Left Rear Seat Cushion Heating Element Low Reference	I	—

E14H Rear Seat Cushion Heater - Right Rear (KA6)

FIGURESIO=6217487 Owner=Owner, Schematics LMD=26-Jan-2023



5360963

Connector Part Information

Harness Type: Rear Seat Heater Control Wiring Harness
OEM Connector: 6098-9046
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(BK)

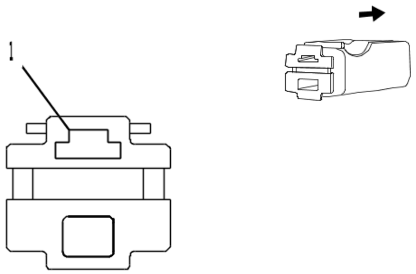
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

E14H Rear Seat Cushion Heater - Right Rear (KA6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN / BN	2296	Right Rear Seat Cushion Heating Element Control	I	—
2	0.75	YE / WH	7053	Right Rear Seat Cushion Temperature Sensor Signal	I	—
3	0.75	WH / BK	7054	Right Rear Cushion Thermistor Feedback Signal	I	—
4	0.75	GN / BK	2297	Right Rear Seat Cushion Heating Element Low Reference	I	—

E18 Rear Window Defogger Grid X1 FIGURESIO=6217488 Owner=Owner, Schematics LMD=26-Jan-2023



Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 13511619
Service Connector: 19367647
Description: 1-Way F 250 Series(BK)

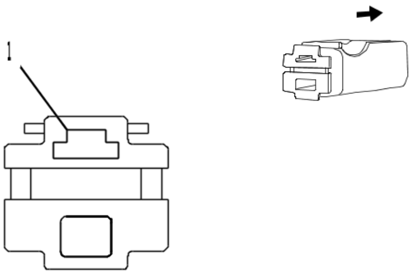
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required

E18 Rear Window Defogger Grid X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BN / VT	293	Rear Defogger Grid Control	I	—

E18 Rear Window Defogger Grid X2 FIGURESIO=6217489 Owner=Owner, Schematics LMD=26-Jan-2023



1413086

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 13511619
Service Connector: 19367647
Description: 1-Way F 250 Series(BK)

Terminal Part Information

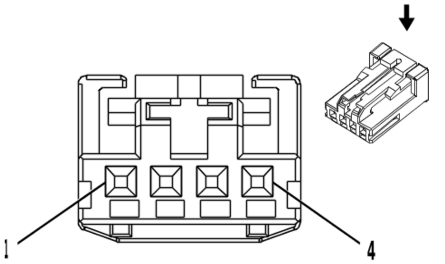
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required

E18 Rear Window Defogger Grid X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1450	Ground	I	—

E28 Front Floor Console Compartment Lamp

FIGURESIO=6217490 Owner=Owner, Schematics LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 13969166
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

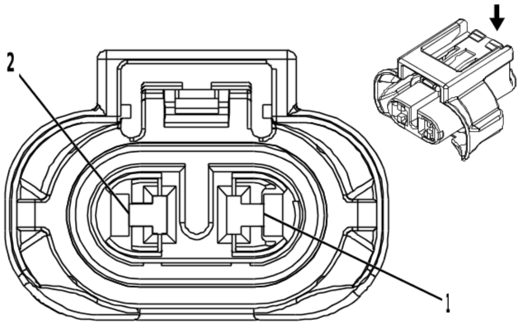
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

E28 Front Floor Console Compartment Lamp

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	1350	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	GN / VT	4786	Dome/Reading Lamp Enable Signal	I	—
4	—	—	—	Not Occupied	—	—

E29LF Front Fog Lamp - Left (T3U&VHU)

FIGURESIO=6217491 Owner=Owner, Schematics LMD=26-Jan-2023



3404058

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 13930730
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 APEX Series, Sealed(BK)

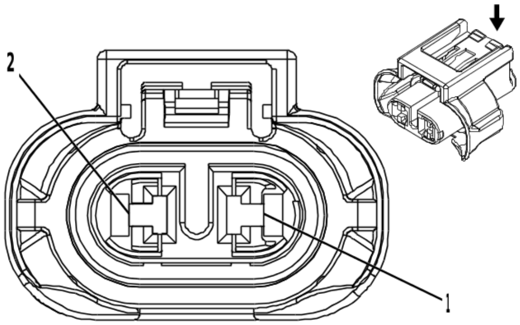
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

E29LF Front Fog Lamp - Left (T3U&VHU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / GY	5061	Left Front Fog Lamp Control	I	—
2	0.5	BK	650	Ground	I	—

E29LF Front Fog Lamp - Left (T3U&Z88-X88-VHU) FIGURESIO=6217492 Owner=Owner, Schematics LMD=26-Jan-2023



3404058

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 13930730
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 APEX Series, Sealed(BK)

Terminal Part Information

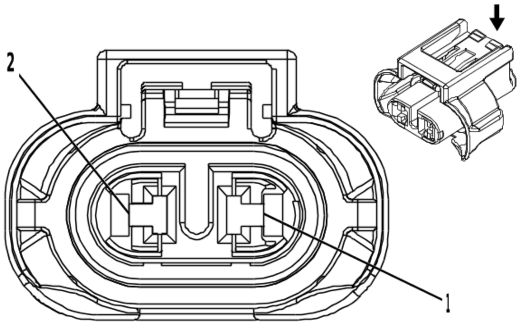
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

E29LF Front Fog Lamp - Left (T3U&Z88-X88-VHU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / GY	5061	Left Front Fog Lamp Control	I	—
2	0.5	BK	650	Ground	I	—

E29RF Front Fog Lamp - Right (T3U&VHU)

FIGURESIO=6217493 Owner=Owner, Schematics LMD=26-Jan-2023



3404058

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 13930730
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 APEX Series, Sealed(BK)

Terminal Part Information

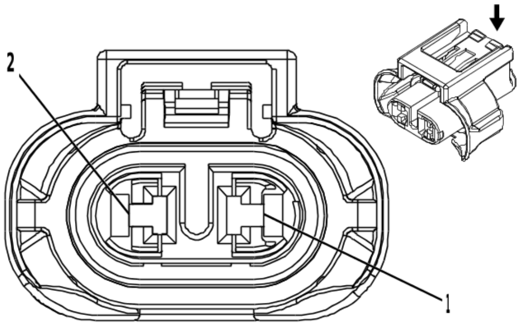
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

E29RF Front Fog Lamp - Right (T3U&VHU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / GN	5062	Right Front Fog Lamp Control	I	—
2	0.5	BK	650	Ground	I	—

E29RF Front Fog Lamp - Right (T3U&Z88-X88-VHU)

FIGURESIO=6217494 Owner=Owner, Schematics
LMD=26-Jan-2023



3404058

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 13930730
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 APEX Series, Sealed(BK)

Terminal Part Information

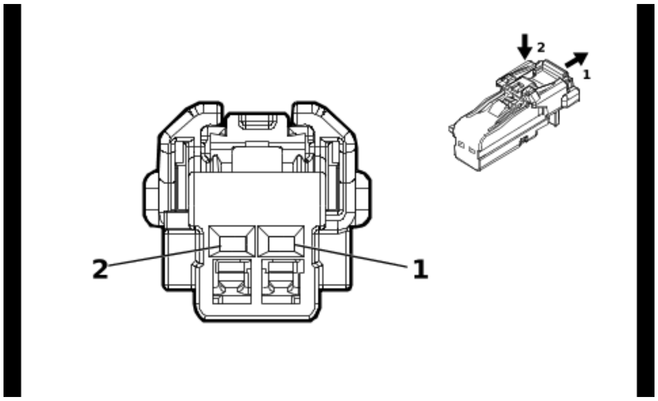
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

E29RF Front Fog Lamp - Right (T3U&Z88-X88-VHU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / GN	5062	Right Front Fog Lamp Control	I	—
2	0.5	BK	650	Ground	I	—

E31L Sunshade Mirror Lamp - Left

FIGURESIO=6217495 Owner=Owner, Schematics LMD=26-Jan-2023



5377746

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 35327306
Service Connector: 84867147
Description: 2-Way F 1.2 MCON Series(BN)

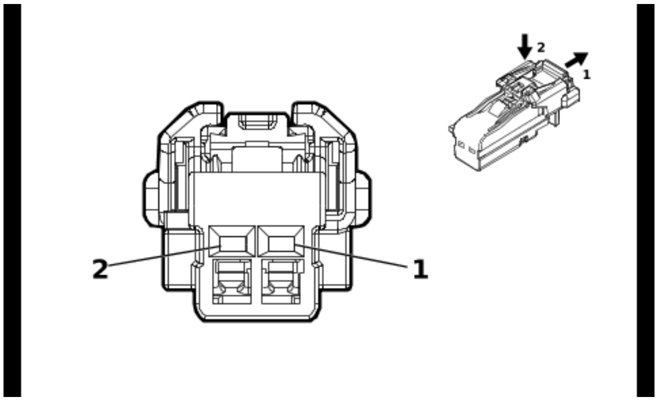
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

E31L Sunshade Mirror Lamp - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / GN	4785	Interior Lamp Overhead Enable Signal	I	—
2	0.5	BK	1050	Ground	I	—

E31R Sunshade Mirror Lamp - Right FIGURESIO=6217496 Owner=Owner, Schematics LMD=26-Jan-2023



5377746

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 35327306
Service Connector: 84867147
Description: 2-Way F 1.2 MCON Series(BN)

Terminal Part Information

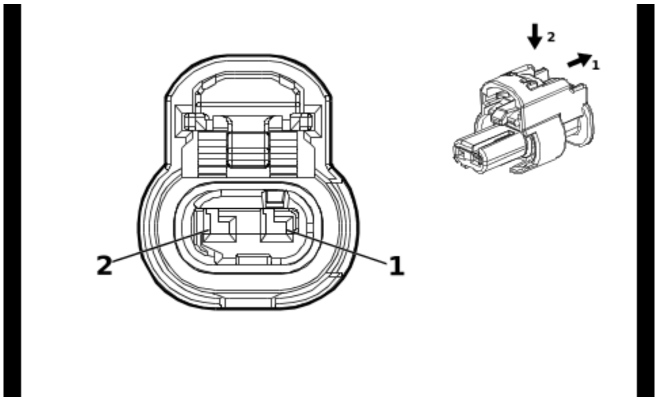
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

E31R Sunshade Mirror Lamp - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY / WH	2369	Interior Lamp Overhead 2 Enable Signal	I	—
2	0.5	BK	1050	Ground	I	—

E33L Cargo Lamp - Left

FIGURESIO=6257960 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Tail Lamp Wiring Harness - Left
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (BU)	No Tool Required

E33L Cargo Lamp - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU	7762	Cargo Lamp Control	I	—
2	—	—	—	Not Occupied	—	—

E33LB Cargo Box Lamp Bulb - Left - Regular Cab

—

Connector Part Information

Harness Type: High Mount Stop Lamp Wiring Harness
OEM Connector: 02075-01
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way

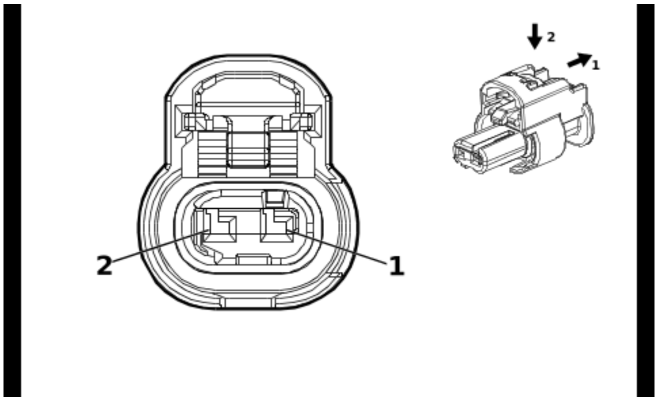
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	Not Available	No Tool Required

E33LB Cargo Box Lamp Bulb - Left - Regular Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	BN	1430	Exterior Courtesy Lamp Control	I	—
B	0.75	BK	1050	Ground	I	—

E33R Cargo Lamp - Right FIGURESIO=6257964 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Tail Lamp Wiring Harness - Right
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (BU)	No Tool Required

E33R Cargo Lamp - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU	7762	Cargo Lamp Control	I	—
2	—	—	—	Not Occupied	—	—

E33RB Cargo Box Lamp Bulb - Right - Regular Cab

—

Connector Part Information

Harness Type: High Mount Stop Lamp Wiring Harness
OEM Connector: 02075-01
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way

Terminal Part Information

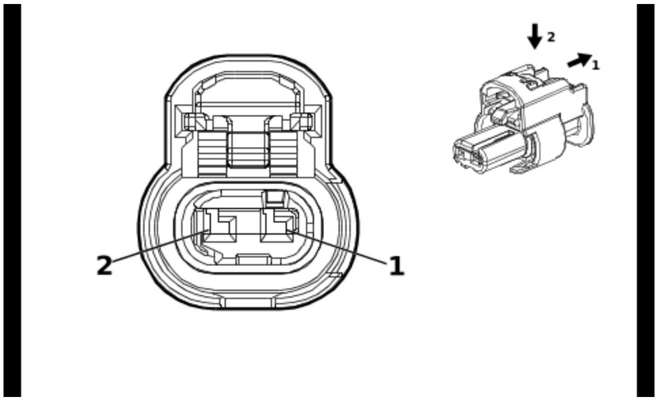
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	Not Available	No Tool Required

E33RB Cargo Box Lamp Bulb - Right - Regular Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	BK	1050	Ground	I	—
	0.75	BK	1050	Ground		—
B	0.75	BN	1430	Exterior Courtesy Lamp Control	I	—
	0.75	BN	1430	Exterior Courtesy Lamp Control		—

E33TH Rear Closure Auxiliary Signal Lamp

FIGURESIO=6217497 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 33327048
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

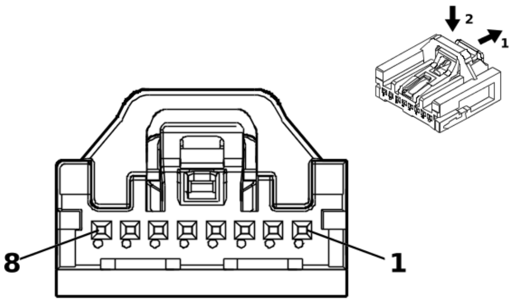
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

E33TH Rear Closure Auxiliary Signal Lamp

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / VT	1430	Exterior Courtesy Lamp Control	I	—
2	0.5	BK	1850	Ground	I	—

E37SMC Rear Seat Position Center Reading and Courtesy Lamp

FIGURESIO=6217498 Owner=Owner, Schematics LMD=26-Jan-2023



5200269

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 35068228
Service Connector: 84769201
Description: 8-Way F Mini 50 Series(BK)

Terminal Part Information

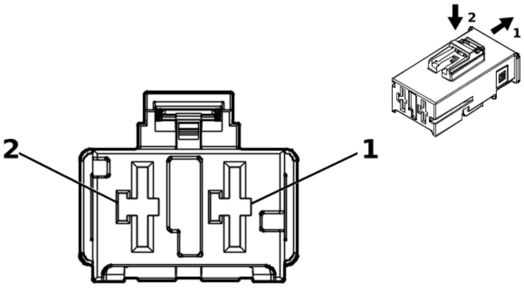
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

E37SMC Rear Seat Position Center Reading and Courtesy Lamp

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN / YE	2903	Row 2 Dome Reading Lamp Interior Lamp Control	I	—
2	0.35	BN / BU	2905	Row 2 Dome Reading Lamp 2 Interior Lamp Control	I	—
3	0.35	BK	1050	Ground	I	—
4	0.35	WH / BN	2904	Row 2 Dome Reading Lamp Switch Signal	I	—
5	0.35	VT / GY	2906	Row 2 Dome Reading Lamp 2 Switch Signal	I	—
6 - 8	—	—	—	Not Occupied	—	—

E40 Air Heater X1 (C32)

FIGURESIO=6257967 Owner=Owner, Schematics LMD=26-Jan-2023



5187955

Connector Part Information

Harness Type: Auxiliary Heater Wiring Harness
OEM Connector: 13525311
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 9.5 MCON-LL Series(BK)

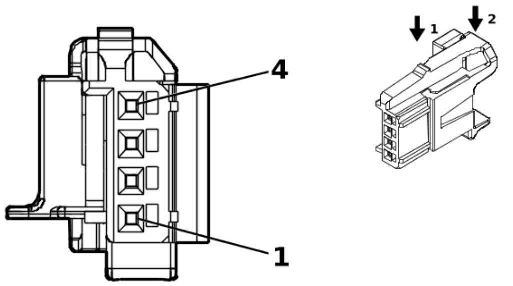
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E40 Air Heater X1 (C32)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	10	RD / GY	642	Battery Positive Voltage	I	—

E40 Air Heater X2 (C32) FIGURESIO=6257970 Owner=Owner, Schematics LMD=26-Jan-2023



5191926

Connector Part Information

Harness Type: Heater Wiring Harness
OEM Connector: 2294399-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

E40 Air Heater X2 (C32)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	VT / BK	339	Run/Crank Ignition 1 Voltage	I	—
3	0.35	BU / VT	2852	Body Control Module LIN Bus 6	I	—
4	0.35	BK	1050	Ground	I	—

E40 Air Heater X3 (C32)

—

Connector Part Information

Harness Type: Auxiliary Heater Wiring Harness
OEM Connector: 20000001
Service Connector: Service by Harness - See Part Catalog
Description: 1-Way

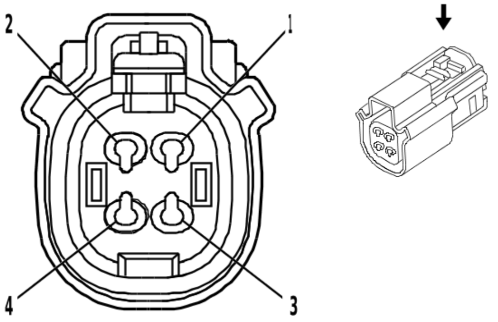
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

E40 Air Heater X3 (C32)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	10	BK	750	Ground	I	—

E42L Rear Body Structure Stop Lamp - Left (GF4 / GF9 / GFC / GFD / GRZ) FIGURESIO=6257974 Owner=Owner, Schematics LMD=26-Jan-2023



1960031

Connector Part Information

Harness Type: Tail Lamp Wiring Harness - Left
OEM Connector: 33472-4006
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

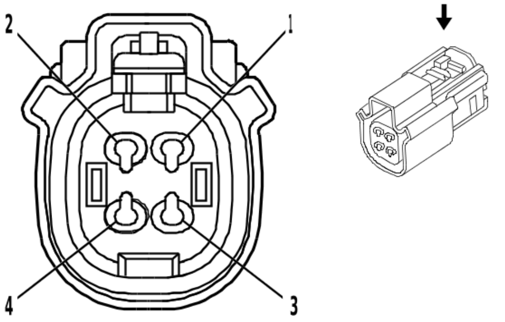
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

E42L Rear Body Structure Stop Lamp - Left (GF4 / GF9 / GFC / GFD / GRZ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	6993	Left Rear Park Lamp Control	I	—
2	0.75	RD	6567	Rear Turn Signal Lamp Feedback Signal	I	—
3	0.75	GN / GN	1334	Left Rear Turn Signal Lamp Control 2	I	—
4	0.75	BK	1951	Signal Ground	I	—

E42R Rear Body Structure Stop Lamp - Right (GF4 / GF9 / GFC / GFD / GRZ)

FIGURESIO=6257976 Owner=Owner, Schematics LMD=26-Jan-2023



1960031

Connector Part Information

Harness Type: Tail Lamp Wiring Harness - Right
OEM Connector: 33472-4006
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

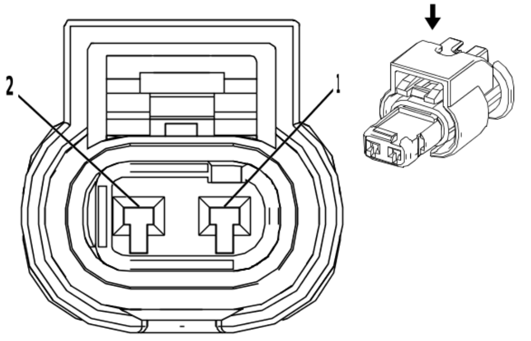
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

E42R Rear Body Structure Stop Lamp - Right (GF4 / GF9 / GFC / GFD / GRZ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / BN	6995	Right Rear Park Lamp Control	I	—
2	0.75	RD	7544	Right Rear Turn Signal Lamp Feedback Signal	I	—
3	0.75	GN	1335	Right Rear Turn Signal Lamp Control 2	I	—
4	0.75	BK	1850	Ground	I	—

E52 Reductant Heater 2 - Injector Supply Pipe (L5P) FIGURESIO=6257978 Owner=Owner, Schematics

LMD=26-Jan-2023



2474752

Connector Part Information

Harness Type: Emission Reduction Fluid Tank Reservoir Wire Harness
OEM Connector: 13586143
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

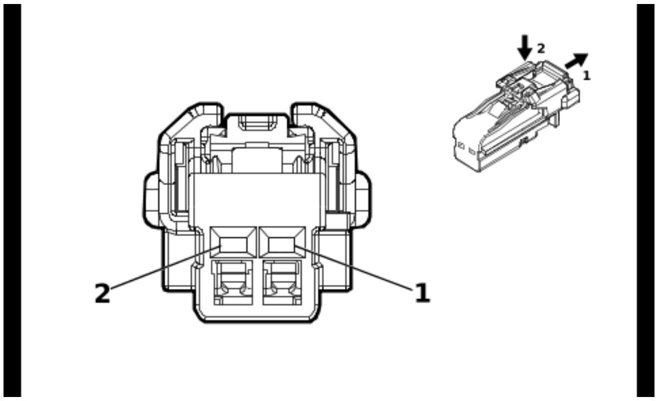
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (L-GN)	No Tool Required

E52 Reductant Heater 2 - Injector Supply Pipe (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	WH	3199	Diesel Exhaust Fluid Pressure Line Heater Control	I	—
2	1	BN	4319	Diesel Exhaust Fluid Line Heater Low Control	I	—

E63D Front Side Door Inside Handle Illumination Lamp - Left

FIGURESIO=6217500 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Left
OEM Connector: 35311666
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

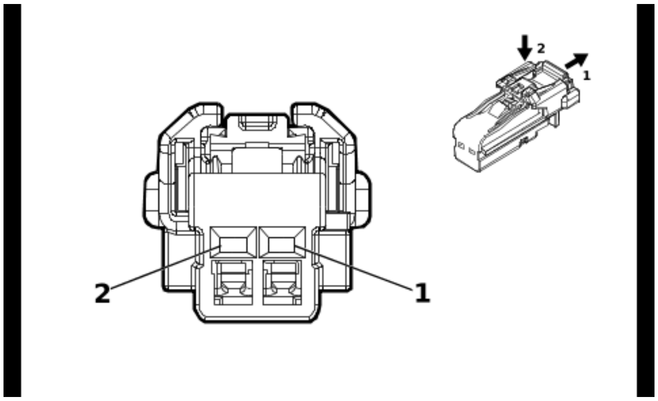
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

E63D Front Side Door Inside Handle Illumination Lamp - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / VT	2767	LED Ambient Lighting Control Left Front Door	I	—
2	0.5	BK	1550	Ground	I	—

E63P Front Side Door Inside Handle Illumination Lamp - Right FIGURESIO=6217501 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Right
OEM Connector: 35311666
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

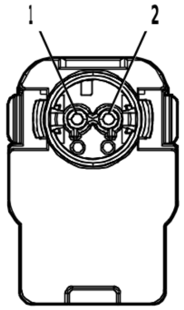
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

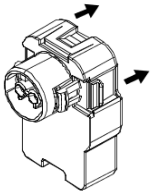
E63P Front Side Door Inside Handle Illumination Lamp - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / BN	2768	LED Ambient Lighting Control Right Front Door	I	—
2	0.75	BK	1350	Ground	I	—

F101 Instrument Panel Airbag X1

FIGURESIO=6257980 Owner=Owner, Schematics LMD=26-Jan-2023





4823732

Connector Part Information

Harness Type: Instrument Panel Airbag Wiring Harness
OEM Connector: 13530531
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way

Terminal Part Information

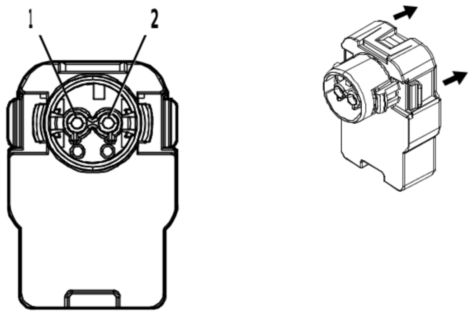
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

F101 Instrument Panel Airbag X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE / OG	3025	Passenger Instrument Panel Air Bag Stage 1 High Control	I	—
2	0.35	OG / WH	3024	Passenger Instrument Panel Air Bag Stage 1 Low Control	I	—

F101 Instrument Panel Airbag X2

FIGURESIO=6257984 Owner=Owner, Schematics LMD=26-Jan-2023



4772246

Connector Part Information

Harness Type: Instrument Panel Airbag Wiring Harness
OEM Connector: 13530532
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way

Terminal Part Information

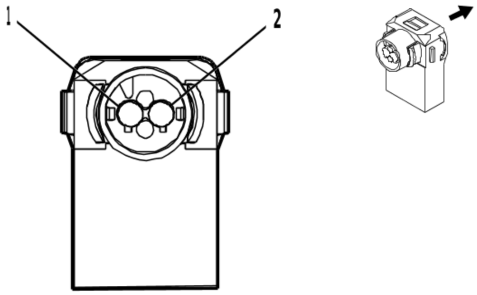
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

F101 Instrument Panel Airbag X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY / OG	3027	Passenger Instrument Panel Air Bag Stage 2 High Control	I	—
2	0.35	OG / VT	3026	Passenger Instrument Panel Air Bag Stage 2 Low Control	I	—

F105L Front and Rear Row Roof Rail Airbag - Left

FIGURESIO=6217503 Owner=Owner, Schematics LMD=26-Jan-2023



4679778

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345783
Service Connector: 13545488
Description: 2-Way F ABX-5 Series(GY with YE Cover)

Terminal Part Information

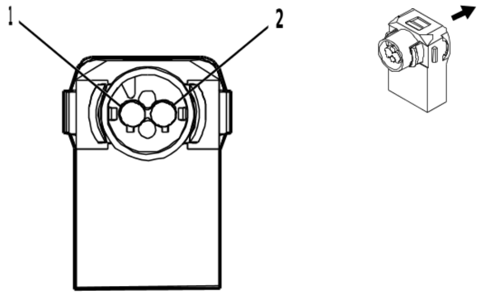
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F105L Front and Rear Row Roof Rail Airbag - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GN	5019	Left Front Roof Rail Air Bag High Control	I	—
2	0.5	VT / OG	5020	Left Front Roof Rail Air Bag Low Control	I	—

F105LF Front Row Roof Rail Airbag - Left

FIGURESIO=6217504 Owner=Owner, Schematics LMD=26-Jan-2023



4679778

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345783
Service Connector: 13545488
Description: 2-Way F ABX-5 Series(GY with YE Cover)

Terminal Part Information

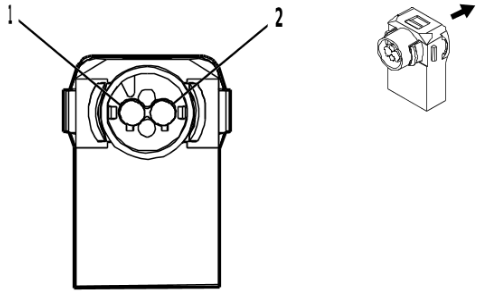
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F105LF Front Row Roof Rail Airbag - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GN	5019	Left Front Roof Rail Air Bag High Control	I	—
2	0.5	VT / OG	5020	Left Front Roof Rail Air Bag Low Control	I	—

F105R Front and Rear Row Roof Rail Airbag - Right

FIGURESIO=6217505 Owner=Owner, Schematics
LMD=26-Jan-2023



4679778

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345783
Service Connector: 13545488
Description: 2-Way F ABX-5 Series(GY with YE Cover)

Terminal Part Information

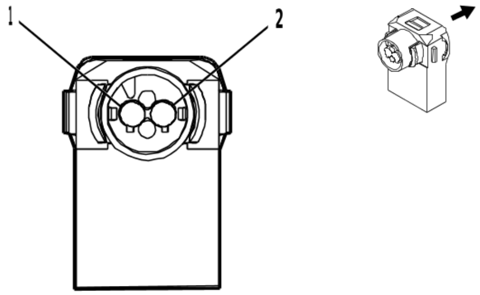
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F105R Front and Rear Row Roof Rail Airbag - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GY	5021	Right Front Roof Rail Air Bag High Control	I	—
2	0.5	WH / OG	5022	Right Front Roof Rail Air Bag Low Control	I	—

F105RF Front Row Roof Rail Airbag - Right

FIGURESIO=6217506 Owner=Owner, Schematics LMD=26-Jan-2023



4679778

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345783
Service Connector: 13545488
Description: 2-Way F ABX-5 Series(GY with YE Cover)

Terminal Part Information

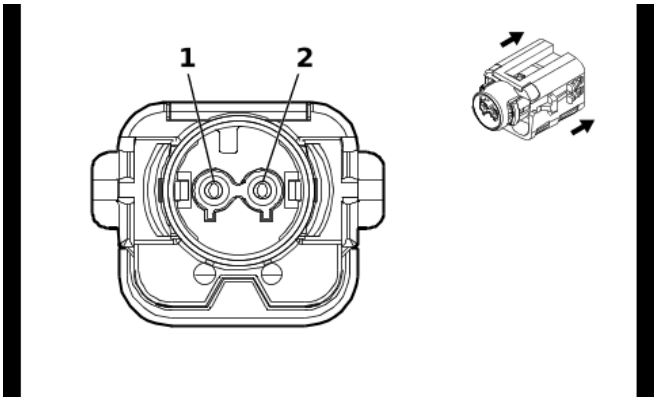
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F105RF Front Row Roof Rail Airbag - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GY	5021	Right Front Roof Rail Air Bag High Control	I	—
2	0.5	WH / OG	5022	Right Front Roof Rail Air Bag Low Control	I	—

F106D Front Seat Outboard Seat Back Airbag - Driver

FIGURESIO=6217507 Owner=Owner, Schematics
LMD=26-Jan-2023



5499727

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 13535270
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F ABX-5 Series(PK with YE Cover)

Terminal Part Information

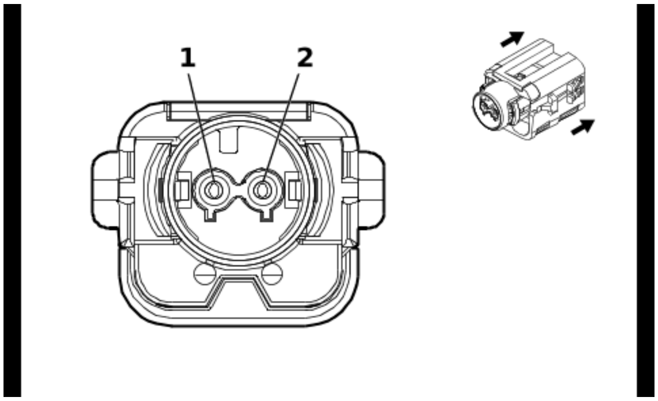
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-10 (GN)	No Tool Required

F106D Front Seat Outboard Seat Back Airbag - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / BU	4962	Driver Seat Back Air Bag High Control	I	—
2	0.5	BK / OG	4963	Driver Seat Back Air Bag Low Control	I	—

F106P Front Seat Outboard Seat Back Airbag - Passenger

FIGURESIO=6217508 Owner=Owner, Schematics
LMD=26-Jan-2023



5499727

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 13535270
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F ABX-5 Series(PK with YE Cover)

Terminal Part Information

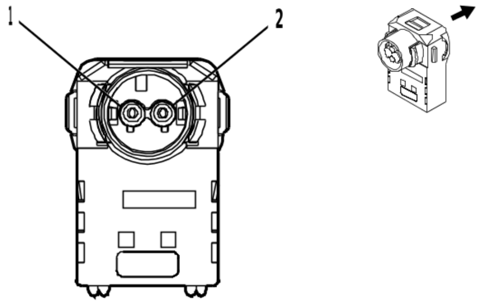
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-10 (GN)	No Tool Required

F106P Front Seat Outboard Seat Back Airbag - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GY	4956	Passenger Seat Back Air Bag High Control	I	—
2	0.5	BU / OG	4957	Passenger Seat Back Air Bag Low Control	I	—

F107 Steering Wheel Airbag X1 (NK5)

FIGURESIO=6257986 Owner=Owner, Schematics LMD=26-Jan-2023



4231869

Connector Part Information

Harness Type: Steering Wheel Horn Switch Wiring Harness
OEM Connector: 13516028
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F ABX-5 Series(PK with YE Cover)

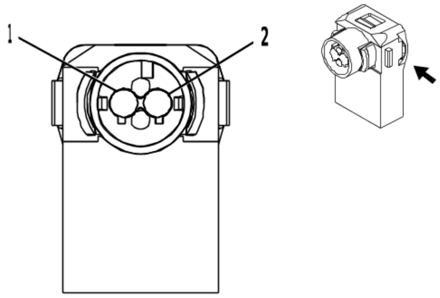
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-10 (GN)	No Tool Required

F107 Steering Wheel Airbag X1 (NK5)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE / VT	3021	Steering Wheel Air Bag Stage 1 High Control	I	—
2	0.5	BN / WH	3020	Steering Wheel Air Bag Stage 1 Low Control	I	—

F107 Steering Wheel Airbag X2 (NK5) FIGURESIO=6257987 Owner=Owner, Schematics LMD=26-Jan-2023



4241364

Connector Part Information

Harness Type: Steering Wheel Horn Switch Wiring Harness
OEM Connector: 13516029
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F ABX-5 Series(PU with YE Cover)

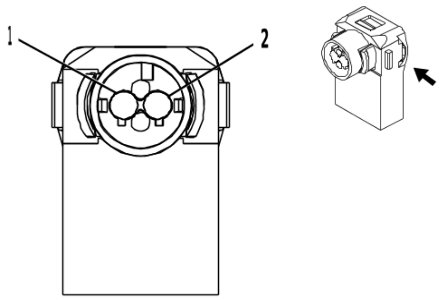
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-10 (GN)	No Tool Required

F107 Steering Wheel Airbag X2 (NK5)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GN	3023	Steering Wheel Air Bag Stage 2 High Control	I	—
2	0.5	WH / VT	3022	Steering Wheel Air Bag Stage 2 Low Control	I	—

F112D Front Seat Belt Retractor - Driver - Crew Cab and Double Cab FIGURESIO=6217509 Owner=Owner, Schematics LMD=27-Jan-2023



4241364

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345778
Service Connector: 13545487
Description: 2-Way F ABX-5 Series(PU with YE Cover)

Terminal Part Information

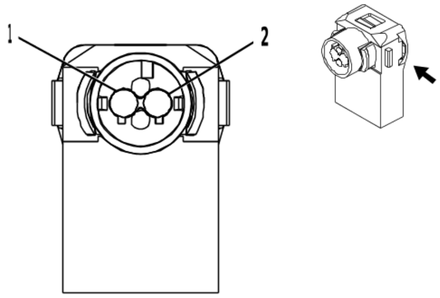
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F112D Front Seat Belt Retractor - Driver - Crew Cab and Double Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / WH	3477	Driver Seat Belt Retractor Pretensioner High Control	I	—
2	0.5	VT / OG	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	—

F112D Front Seat Belt Retractor - Driver - Regular Cab

FIGURESIO=6217510 Owner=Owner, Schematics
LMD=26-Jan-2023



4241364

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345778
Service Connector: 13545487
Description: 2-Way F ABX-5 Series(PU with YE Cover)

Terminal Part Information

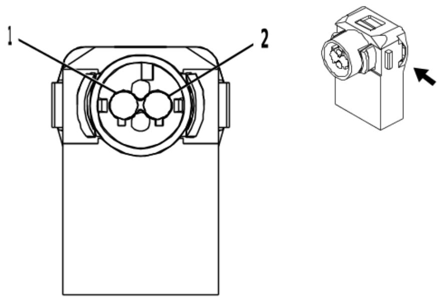
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F112D Front Seat Belt Retractor - Driver - Regular Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / WH	3477	Driver Seat Belt Retractor Pretensioner High Control	I	—
2	0.5	VT / OG	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	—

F112P Front Seat Belt Retractor - Passenger - Crew Cab and Double Cab

FIGURESIO=6217511 Owner=Owner, Schematics LMD=27-Jan-2023



4241364

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345778
Service Connector: 13545487
Description: 2-Way F ABX-5 Series(PU with YE Cover)

Terminal Part Information

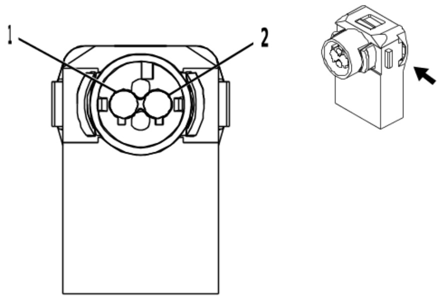
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F112P Front Seat Belt Retractor - Passenger - Crew Cab and Double Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GN	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	—
2	0.5	WH / OG	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	—

F112P Front Seat Belt Retractor - Passenger - Regular Cab

FIGURESIO=6217512 Owner=Owner, Schematics
LMD=26-Jan-2023



4241364

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345778
Service Connector: 13545487
Description: 2-Way F ABX-5 Series(PU with YE Cover)

Terminal Part Information

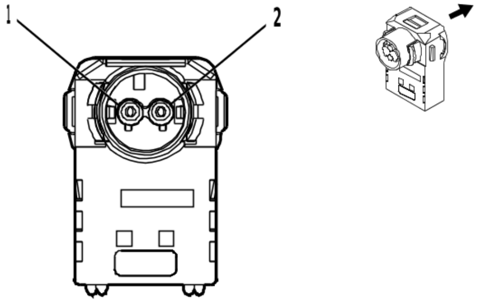
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F112P Front Seat Belt Retractor - Passenger - Regular Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / GN	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	—
2	0.5	WH / OG	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	—

F113D Front Seat Belt Anchor Plate Tensioner - Driver

FIGURESIO=6217513 Owner=Owner, Schematics
LMD=26-Jan-2023



4231869

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345777
Service Connector: 13545486
Description: 2-Way F ABX-5 Series(PK with YE Cover)

Terminal Part Information

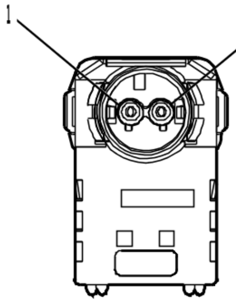
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

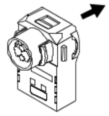
F113D Front Seat Belt Anchor Plate Tensioner - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / YE	3481	Driver Seat Belt Anchor Pretensioner High Control	I	—
2	0.5	VT / OG	3482	Driver Seat Belt Anchor Pretensioner Low Control	I	—

F113P Front Seat Belt Anchor Plate Tensioner - Passenger

FIGURESIO=6217514 Owner=Owner, Schematics
LMD=26-Jan-2023





4231869

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33345777
Service Connector: 13545486
Description: 2-Way F ABX-5 Series(PK with YE Cover)

Terminal Part Information

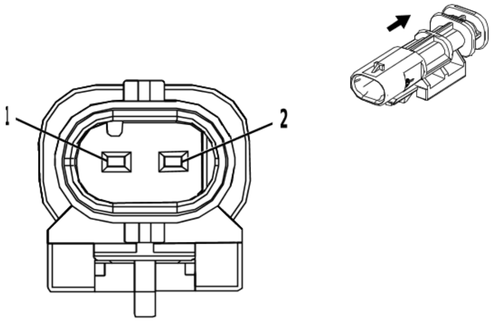
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

F113P Front Seat Belt Anchor Plate Tensioner - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG / BN	3479	Passenger Seat Belt Anchor Pretensioner High Control	I	—
2	0.5	GY / OG	3480	Passenger Seat Belt Anchor Pretensioner Low Control	I	—

G12AX Fuel Pump - Auxiliary (L5P)

FIGURESIO=6217519 Owner=Owner, Schematics LMD=26-Jan-2023



2474755

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33207247
Service Connector: 85533165
Description: 2-Way M 1.2 MCON Series, Sealed(BK)

Terminal Part Information

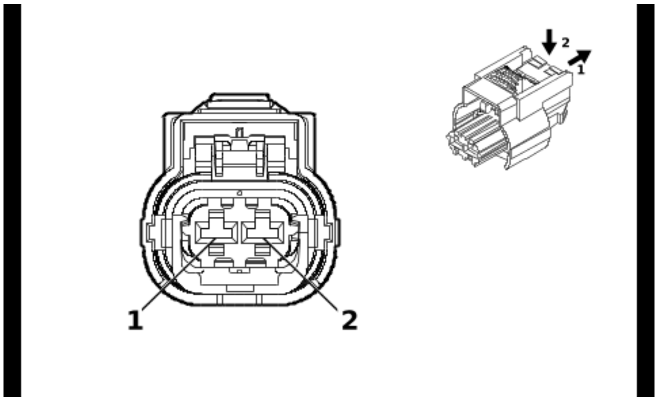
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

G12AX Fuel Pump - Auxiliary (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BU / GN	2120	Secondary Fuel Pump Control	I	—
2	1	BK / GN	1580	Fuel Pump Low Reference	I	—

G13 Generator X1 (L5P)

FIGURESIO=6217520 Owner=Owner, Schematics LMD=26-Jan-2023



4992524

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35182447
Service Connector: 84941154
Description: 2-Way F 2.8 MCP Series, Sealed(BK)

Terminal Part Information

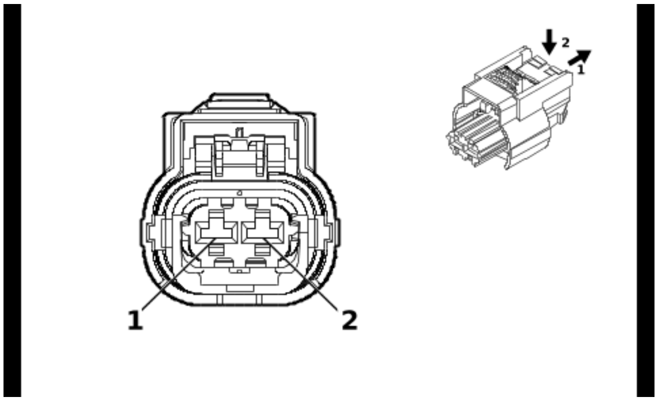
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

G13 Generator X1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	25	Charge Indicator Control	I	—
2	0.5	GY	23	Generator Field Duty Cycle Signal	I	—

G13 Generator X1 (L8T)

FIGURESIO=6217521 Owner=Owner, Schematics LMD=26-Jan-2023



4992524

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35182447
Service Connector: 84941154
Description: 2-Way F 2.8 MCP Series, Sealed(BK)

Terminal Part Information

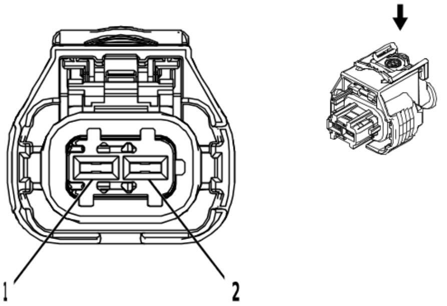
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

G13 Generator X1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	25	Charge Indicator Control	I	—
2	0.5	GY	23	Generator Field Duty Cycle Signal	I	—

G13 Generator X1 (VYU)

FIGURESIO=6217522 Owner=Owner, Schematics LMD=26-Jan-2023



2577394

Connector Part Information

Harness Type: Accessory Wiring Harness
OEM Connector: 13930085
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

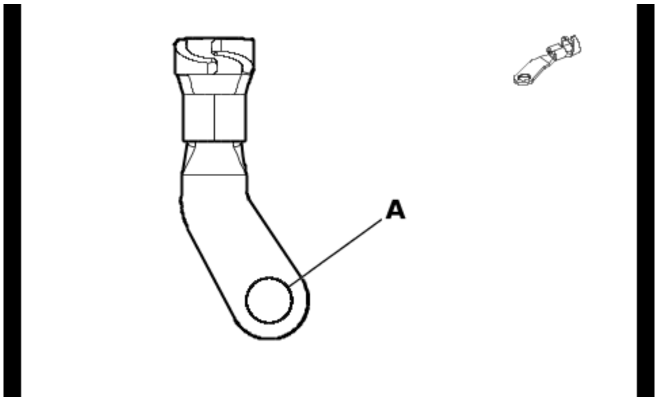
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

G13 Generator X1 (VYU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	25	Charge Indicator Control	I	—
2	0.5	GY	23	Generator Field Duty Cycle Signal	I	—

G13 Generator X2

FIGURESIO=6257989 Owner=Owner, Schematics LMD=26-Jan-2023



5911279

Connector Part Information

Harness Type: Starter Solenoid Cable
OEM Connector: 84238913
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

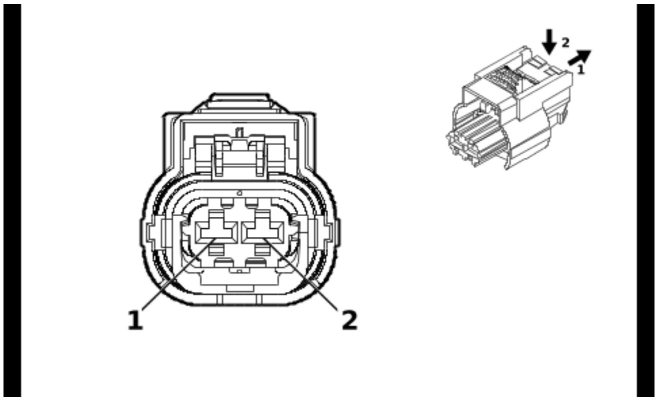
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

G13 Generator X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	35	RD / BU	42	Battery Positive Voltage	I	—

G13A Auxiliary Generator X1 (L5P) FIGURESIO=6217523 Owner=Owner, Schematics LMD=26-Jan-2023



4992524

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35182447
Service Connector: 84941154
Description: 2-Way F 2.8 MCP Series, Sealed(BK)

Terminal Part Information

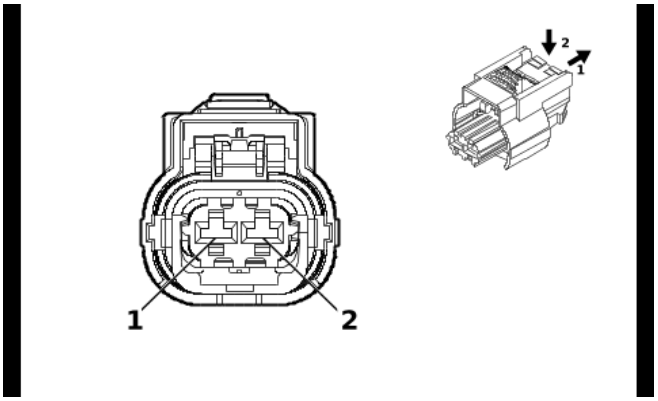
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

G13A Auxiliary Generator X1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	25	Charge Indicator Control	I	—
2	0.5	GY	23	Generator Field Duty Cycle Signal	I	—

G13A Auxiliary Generator X1 (L8T)

FIGURESIO=6217524 Owner=Owner, Schematics LMD=26-Jan-2023



4992524

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35182447
Service Connector: 84941154
Description: 2-Way F 2.8 MCP Series, Sealed(BK)

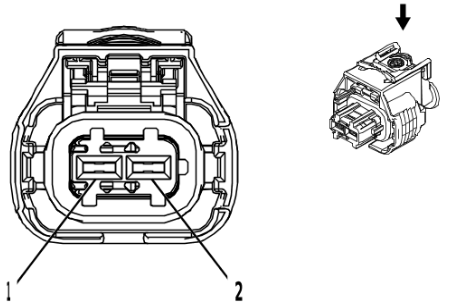
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

G13A Auxiliary Generator X1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	25	Charge Indicator Control	I	—
2	0.5	GY	23	Generator Field Duty Cycle Signal	I	—

G13A Auxiliary Generator X1 (VYU) FIGURESIO=6217525 Owner=Owner, Schematics LMD=26-Jan-2023



2577394

Connector Part Information

Harness Type: Accessory Wiring Harness
OEM Connector: 13930085
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

G13A Auxiliary Generator X1 (VYU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	25	Charge Indicator Control	I	—
2	0.5	GY	23	Generator Field Duty Cycle Signal	I	—

G13A Auxiliary Generator X2 (KHF)

—

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 84223343
Service Connector: Service by Harness - See Part Catalog
Description: 1-Way

Terminal Part Information

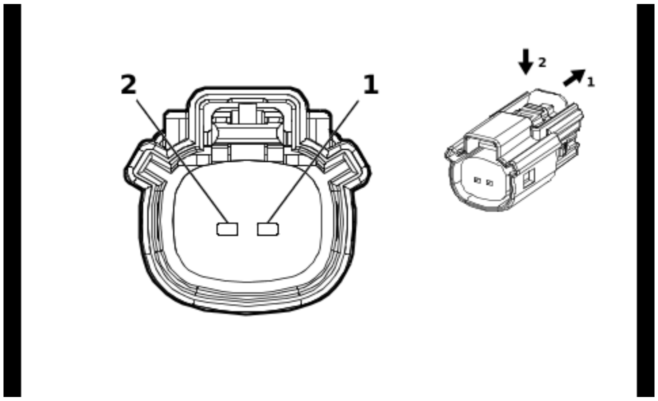
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

G13A Auxiliary Generator X2 (KHF)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	—	RD / YE	2	Battery Positive Voltage	I	—

G18 Fuel Pump - High Pressure (L8T)

FIGURESIO=6217526 Owner=Owner, Schematics LMD=26-Jan-2023



2474713

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Right
OEM Connector: 33471-0206
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

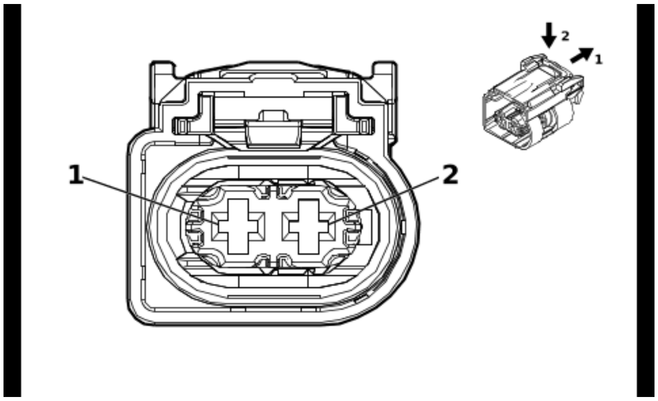
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

G18 Fuel Pump - High Pressure (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	VT / BK	7300	High Pressure Fuel Pump Low Control	I	—
2	0.8	YE	7301	High Pressure Fuel Pump High Control	I	—

G24 Windshield Washer Pump FIGURESIO=6217527 Owner=Owner, Schematics LMD=26-Jan-2023



5580410

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35459954
Service Connector: 85005016
Description: 2-Way F 2.8 MCP Series, Sealed(BK)

Terminal Part Information

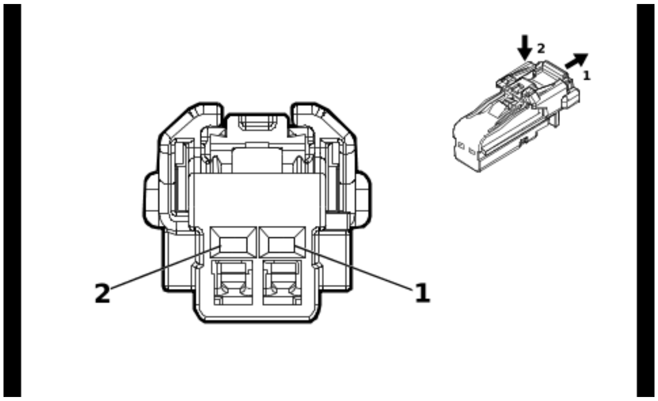
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

G24 Windshield Washer Pump

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY / VT	228	Windshield Washer Pump Control	I	—
2	0.75	BK	150	Ground	I	—

G31D Front Seat Back Lumbar Pump - Driver (A45&AF6)

FIGURESIO=6217528 Owner=Owner, Schematics
LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 6098-8988
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

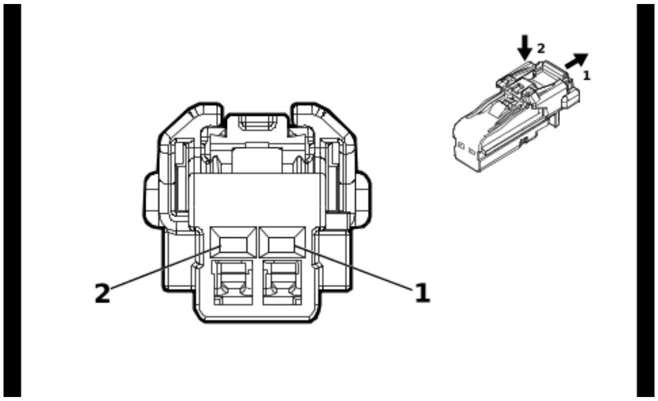
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

G31D Front Seat Back Lumbar Pump - Driver (A45&AF6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / BU	4891	Driver Seat Lumbar/Bolster Pump Control	I	—
2	0.5	BN / BK	2305	Driver Seat Bolster Pump Low Reference	I	—

G31P Front Seat Back Lumbar Pump - Passenger (-(AKE/AVU))

FIGURESIO=6217529 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 6098-8988
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

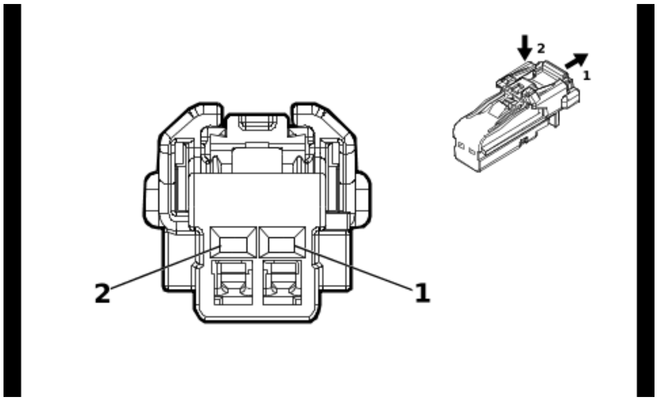
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

G31P Front Seat Back Lumbar Pump - Passenger (-(AKE/AVU))

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / WH	4890	Passenger Seat Lumbar/Bolster Pump Control	I	—
2	0.5	BK	1350	Ground	I	—

G31P Front Seat Back Lumbar Pump - Passenger (AKE&AVU)

FIGURESIO=6217530 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 6098-8988
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

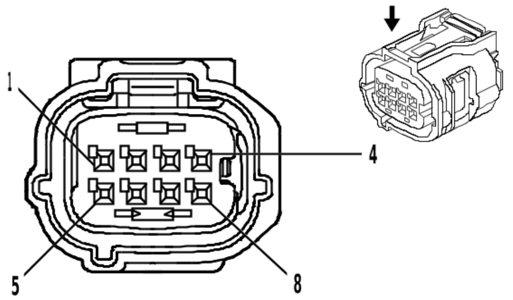
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

G31P Front Seat Back Lumbar Pump - Passenger (AKE&AVU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / WH	4890	Passenger Seat Lumbar/Bolster Pump Control	I	—
2	0.5	GY / BK	2306	Passenger Seat Bolster Pump Low Reference	I	—

G34 Evaporative Emission System Leak Detection Pump

FIGURESIO=6217531 Owner=Owner, Schematics
LMD=26-Jan-2023



2042489

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13524142
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F TS Series, Sealed(D-GY)

Terminal Part Information

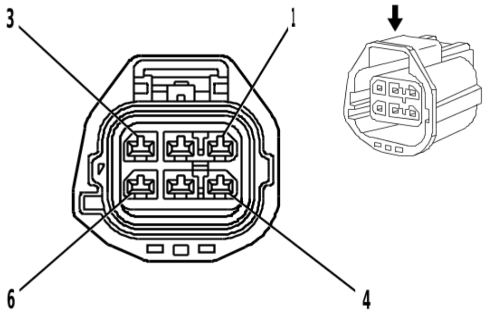
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

G34 Evaporative Emission System Leak Detection Pump

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / GN	332	Evaporative Leak Check Switching Valve Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	VT / BU	5293	Powertrain Main Relay Fused Supply Voltage 4	I	—
4	0.5	VT / WH	338	Evaporative Leak Check Pump Motor Control	I	—
5	0.5	VT / BU	5293	Powertrain Main Relay Fused Supply Voltage 4	I	—
6	0.5	GN / RD	69	Evaporative Leak Check Tank Vapor Pressure Sensor Voltage Reference	I	—
7	0.5	YE / BU	316	Evaporative Leak Check Tank Vapor Pressure Signal	I	—
8	0.5	BK / GN	54	Evaporative Leak Check Tank Vapor Pressure Sensor Low Reference	I	—

K4 Running Board Control Module X1

FIGURESIO=6217532 Owner=Owner, Schematics LMD=26-Jan-2023



1420587

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33334914
Service Connector: 19368306
Description: 6-Way F 2.8 Series, Sealed(GY)

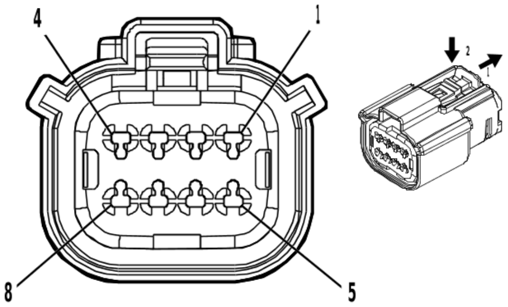
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

K4 Running Board Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	RD / WH	1040	Battery Positive Voltage	I	—
2	2	GY	7472	Left Running Board Step Motor Control Retract	I	—
3	2	BU	7470	Right Running Board Step Motor Control Extend	I	—
4	2.5	BK / WH	1151	Signal Ground	I	—
5	2	WH / BN	7471	Left Running Board Step Motor Control Extend	I	—
6	2	GN	7469	Right Left Running Board Step Motor Control Retract	I	—

K4 Running Board Control Module X2 FIGURESIO=6217533 Owner=Owner, Schematics LMD=26-Jan-2023



4846407

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35037827
Service Connector: 84928314
Description: 8-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

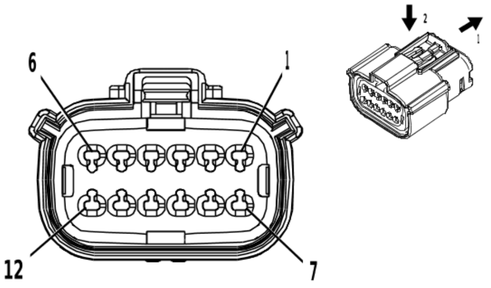
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

K4 Running Board Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
2	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
3	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
4	—	—	—	Not Occupied	—	—
5	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
6	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
7	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
8	—	—	—	Not Occupied	—	—

K4 Running Board Control Module X3

FIGURESIO=6217534 Owner=Owner, Schematics LMD=26-Jan-2023



2871860

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35435906
Service Connector: 19352907
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

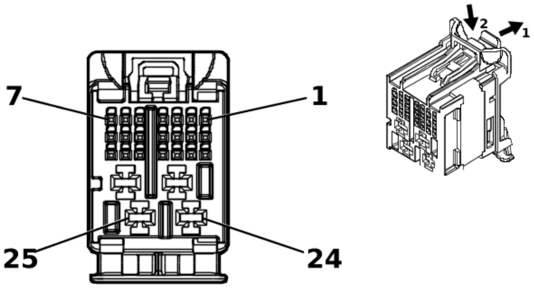
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217

K4 Running Board Control Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / RD	7464	Right Running Board Step Motor Hall Sensor 5V Reference	I	—
2	0.5	VT	7465	Right Running Board Step Motor Hall Sensor Signal	I	—
3	0.5	YE / BK	7463	Right Running Board Step Motor Hall Sensor Low Reference	I	—
4	0.5	BN	4748	Left Running Board Step Courtesy Lamp Control	I	—
5	0.5	GY / VT	4749	Right Running Board Step Courtesy Lamp Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.5	VT / RD	7468	Left Running Board Step Motor Hall Sensor 5V Reference	I	—
8	0.5	YE	7467	Left Running Board Step Motor Hall Sensor Signal	I	—
9	0.5	YE / BN	7466	Left Running Board Step Motor Hall Sensor Low Reference	I	—
10 - 12	—	—	—	Not Occupied	—	—

K9 Body Control Module X1

FIGURESIO=6217535 Owner=Owner, Schematics LMD=26-Jan-2023



5203995

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35392285
Service Connector: 13534967
Description: 25-Way F 0.5 MQS, 2.8 MCP Series(BK with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	87814662	J-35616-4A (PU)	J-38125-557

K9 Body Control Module X1

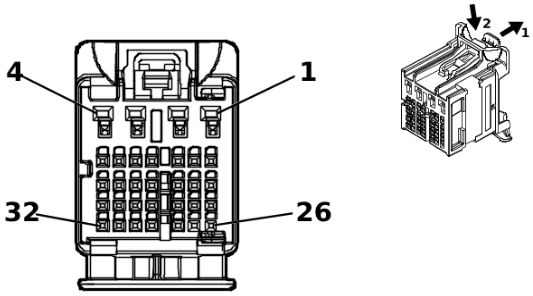
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	BU / GN	4248	Cargo Lamp Indicator Control	I	—
3 - 4	—	—	—	Not Occupied	—	—
5	0.35	BU / GY	754	Blower Motor Speed Control	I	—
6	0.35	WH / YE	4634	HVAC Remote Enable Signal	I	—
7	0.35	WH / GY	7297	Minor Endgate High Relay Control	I	—
8 - 10	—	—	—	Not Occupied	—	—
11	0.35	GY / GN	4636	HVAC System Enable Signal	I	—
12	0.35	GY	728	Security Indicator Control	I	—
13	0.35	YE	6812	Out of Park Signal	I	—
14	0.35	BN / BU	4892	Auxiliary Battery Relay Control	I	—
15	0.35	GY	590	Driver Solar Sensor Signal	I	—
16	0.35	GY	6137	Air Conditioning Evaporator Temperature Sensor Signal	I	—
17	0.35	WH / BU	278	Ambient Light Sensor Signal	I	—
18	0.35	BU / WH	734	Inside Air Temperature Sensor Signal	I	—
19	0.35	GY	158	Cargo Lamp Switch Signal	I	—
20	0.35	GN / VT	2852	Body Control Module LIN Bus 6	I	—
21 - 22	—	—	—	Not Occupied	—	—
23	1	RD / GY	2140	Battery Positive Voltage	II	—

K9 Body Control Module X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
24	—	—	—	Not Occupied	—	—
25	1	GN / YE	6840	Auxiliary Device 2 Switched Voltage	II	—

K9 Body Control Module X2

FIGURESIO=6217536 Owner=Owner, Schematics LMD=26-Jan-2023



5204222

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35392289
Service Connector: 13534980
Description: 32-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(PK with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58

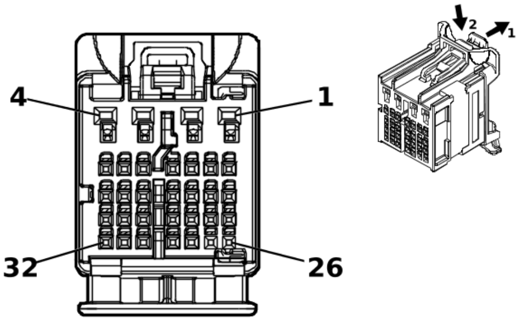
K9 Body Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 4	—	—	—	Not Occupied	—	—
5	0.35	BU / GN	5723	Ignition Mode Switch Mode Voltage	I	—
6 - 8	—	—	—	Not Occupied	—	—
9	0.35	GN / BU	3738	Tap Up/Tap Down Switch Signal 2	I	—
10	0.35	WH / BN	2203	Enhanced Driver Mode 2 Switch Signal	I	—
11	0.35	GY	1198	Endgate Release Switch Analog Signal Interior	I	—
12	0.35	YE / BU	1714	Windshield Wiper Switch Low Signal	I	—
13	0.35	GY / GN	5737	Distance Sensing Cruise Control Gap Up/Down Switch Signal	I	—
14	0.35	BN / GN	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal	I	—
15	—	—	—	Not Occupied	—	—
16	0.35	BN / BK	5720	Ignition Mode Switch Accessory LED Signal	I	—
17	—	—	—	Not Occupied	—	—
18	0.35	YE / BU	2912	Driver Mode 2 Indicator Control	I	—
19	0.35	WH / VT	103	Headlamp Switch On Signal	I	—
20	0.35	GN / GY	13	Headlamp Switch Park Lamp Signal	I	—
21	0.35	GN / BN	306	Headlamp Switch Off Signal	I	—
22	0.35	GY	4989	Driver Mode 2 Switch Signal	I	—
23	0.35	VT / BU	2916	Right Turn Signal Switch Signal	I	—
24	—	—	—	Not Occupied	—	—

K9 Body Control Module X2 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
25	0.35	BK / GY	6009	Windshield Wiper Switch Low Reference	I	—
26	0.35	WH / BK	94	Windshield Washer Switch Signal	I	—
27	0.35	YE / BN	307	Headlamp Switch Flash Signal	I	—
28	0.35	GN / WH	3287	Horn Switch Signal	I	—
29	0.35	WH / GN	2915	Left Turn Signal Switch Signal	I	—
30	0.35	BK / YE	407	Sensor Low Reference	I	—
31	0.35	GN / WH	111	Hazard Warning Switch Signal	I	—
32	0.35	WH	524	High Beam Select Switch High Beam Signal	I	—

K9 Body Control Module X3 FIGURESIO=6217537 Owner=Owner, Schematics LMD=26-Jan-2023



5203925

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35392288
Service Connector: 13534977
Description: 32-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(BU with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

K9 Body Control Module X3

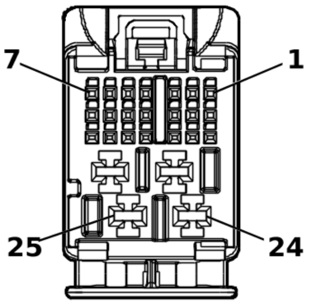
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.35	GN / VT	4786	Dome/Reading Lamp Enable Signal	II	—
4 - 6	—	—	—	Not Occupied	—	—
7	0.35	WH / BN	7555	Headlamp Switch Signal	I	—
8 - 9	—	—	—	Not Occupied	—	—
10	0.35	GN / BK	2858	Body Control Module LIN Bus 12	I	—
11	—	—	—	Not Occupied	—	—
12	0.35	YE / WH	816	Brake Transmission Shift Interlock Solenoid Actuator Control	I	—
13	0.35	WH	3152	Lane Departure Warning Indicator Control	I	—
14	0.35	GN / BN	5852	Rear Parking Assist Disable LED Signal	I	—
15	—	—	—	Not Occupied	—	—
16	0.35	GN / BU	761	Blower Speed Feedback Signal	I	—
17	0.35	WH / VT	5905	Key Capture/Column Lock Shift Position Signal	I	—
18	0.35	YE	7556	Headlamp Switch Reference	I	—
19	0.35	BU / BK	5719	Ignition Mode Switch Start LED Signal	I	—
20	—	—	—	Not Occupied	—	—
21	0.35	BN	7291	Major Endgate Release Switch Signal Interior	I	—
22 - 23	—	—	—	Not Occupied	—	—
24	0.35	WH / BU	3691	Trailer Brake Apply Signal	I	—

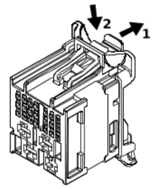
K9 Body Control Module X3 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
25	0.35	BU / GY	4990	Driver Mode 1 Switch Signal	I	—
26	0.35	GY / BN	3904	Auto High Beam Assist Switch Signal	I	—
27	0.35	GY / WH	3153	Lane Departure Warning Disable Switch Signal	I	—
28 - 29	—	—	—	Not Occupied	—	—
30	0.35	BU / YE	6844	ABS/Traction Control Hill Descent Control Switch Signal	I	—
31	0.35	GY / GN	2555	Rear Parking Assist Disable Signal	I	—
32	—	—	—	Not Occupied	—	—

K9 Body Control Module X4

FIGURESIO=6217538 Owner=Owner, Schematics LMD=26-Jan-2023





5203893

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35392284
Service Connector: 13534970
Description: 25-Way F 0.5 MQS, 2.8 MCP Series(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	87814662	J-35616-4A (PU)	J-38125-557

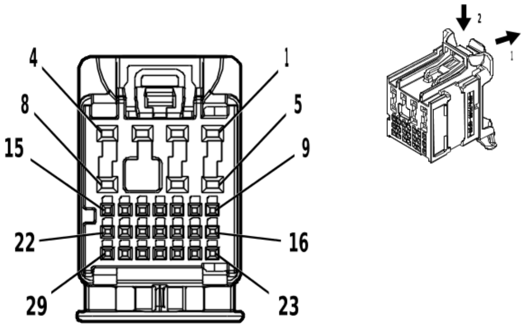
K9 Body Control Module X4

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN / BK	3552	Interior Passive Entry Antenna 1 High Signal	I	—
2	0.35	WH	3553	Interior Passive Entry Antenna 1 Low Signal	I	—
3	0.35	BK / VT	1449	Steering Wheel Resistor Ladder Low Reference	I	—
4	0.35	WH / GN	7728	Major Endgate High Relay Control	I	—
5	0.35	GN / VT	5199	Run/Crank Relay Coil Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.35	BN / BK	4996	Immobilizer Antenna Signal [+]	I	—
8 - 9	—	—	—	Not Occupied	—	—
10	0.35	GY / GN	4083	Retained Accessory Power Relay 2 Coil Control	I	—
11	0.35	BU / YE	7176	All Windows Open Switch Signal	I	—
12	0.35	BU / VT	7729	Major Endgate Low Relay Control	I	—
13	—	—	—	Not Occupied	—	—
14	0.35	WH / GY	4997	Immobilizer Antenna Low Signal	I	—
15	0.35	BU / VT	1788	Traction Control Switch Signal 1	I	—
16	0.35	GN / WH	4115	Body Control Module LIN Bus 5	I	—
17 - 18	—	—	—	Not Occupied	—	—
19	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
20	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—
21	0.35	WH	6816	Indicator Dimming Control	I	—

K9 Body Control Module X4 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
22	0.5	RD / WH	2740	Battery Positive Voltage	II	—
23	2	RD / BU	2540	Battery Positive Voltage	II	—
24	1	BK	1050	Ground	II	—
25	1	BK	1050	Ground	II	—

K9 Body Control Module X5 FIGURESIO=6217539 Owner=Owner, Schematics LMD=26-Jan-2023



4584346

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35364128
Service Connector: 13534972
Description: 29-Way F 0.5 NANO, 1.2 MCON Series(GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

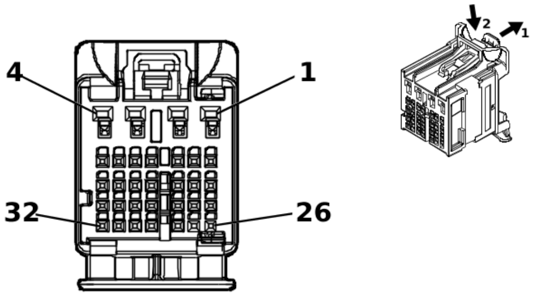
K9 Body Control Module X5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.5	BU / BN	7573	Air Conditioning Compressor Solenoid Valve Control	II	—
3	0.5	BU / YE	7574	Air Conditioning Compressor Solenoid Valve Control	II	—
4	0.75	WH	2679	Lock Actuators Unlock Control 1	II	—
5	—	—	—	Not Occupied	—	—
6	0.5	YE	6817	LED Backlight Dimming Control 1	II	—
7	—	—	—	Not Occupied	—	—
8	0.75	GY	2681	Left Front Door Lock Actuator Lock Control	II	—
9 - 10	—	—	—	Not Occupied	—	—
11	0.35	BN / WH	28	Horn Relay Control	I	—
12	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—
13	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
14 - 15	—	—	—	Not Occupied	—	—
16	0.35	VT	4301	Passive Entry Left Front Antenna Signal High	I	—
17	0.35	GN / YE	2855	Body Control Module LIN Bus 9	I	—
18	0.35	VT / GY	126	Left Front Door Open Switch Signal	I	—
19	0.35	GN / YE	6134	Body Control Module LIN Bus 3	I	—
20	—	—	—	Not Occupied	—	—

K9 Body Control Module X5 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
21	0.35	WH / BU	6311	Cruise/ETC/TCC Brake Signal	I	—
22	0.35	BN / VT	193	Rear Defogger Relay Control	I	—
23	0.35	VT / GY	4302	Passive Entry Left Front Antenna Signal Low	I	—
24	0.35	WH	5359	Brake Apply Sensor Control	I	—
25	0.35	BU / YE	5361	Brake Apply Sensor Signal	I	—
26	0.35	BK / BN	5360	Brake Apply Sensor Low Reference	I	—
27	0.35	YE	1144	Endgate Release Switch Discrete Signal Exterior	I	—
28 - 29	—	—	—	Not Occupied	—	—

K9 Body Control Module X6 FIGURESIO=6217540 Owner=Owner, Schematics LMD=26-Jan-2023



5202291

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35392287
Service Connector: 13534981
Description: 32-Way F 0.5 MQS, 1.2 OCS Series(BN with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

K9 Body Control Module X6

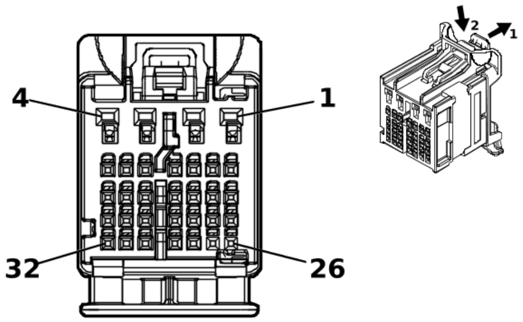
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.75	VT / WH	1094	Right Rear Door Lock Actuator Lock Control	II	—
3	0.75	GY / BK	2680	Lock Actuators Unlock Control 2	II	—
4 - 6	—	—	—	Not Occupied	—	—
7	0.35	BN / GN	3568	Rear Closure Passive Entry Antenna High Signal	I	—
8	0.35	GN / GY	3569	Rear Closure Passive Entry Antenna Low Signal	I	—
9 - 10	—	—	—	Not Occupied	—	—
11	0.35	GN / BU	6133	Body Control Module LIN Bus 2	I	—
12	0.35	GY	7292	Major Endgate Release Switch Signal Exterior	I	—
13	—	—	—	Not Occupied	—	—
14	0.35	VT	801	Retained Accessory Power Control	I	—
15 - 18	—	—	—	Not Occupied	—	—
19	0.35	YE	7294	Minor Endgate Release Switch Discrete Signal Exterior	I	—
20	—	—	—	Not Occupied	—	—
21	0.35	YE / BU	7295	Left Minor Endgate Ajar Signal	I	—
22	0.35	BN / GN	4064	Hood Status B Signal	I	—
23 - 27	—	—	—	Not Occupied	—	—

K9 Body Control Module X6 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
28	0.35	BU	2675	Left Front Exterior Door Handle Switch Unlock Signal	I	—
29 - 32	—	—	—	Not Occupied	—	—

K9 Body Control Module X7

FIGURESIO=6217541 Owner=Owner, Schematics LMD=26-Jan-2023



5202294

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35397992
Service Connector: 13534979
Description: 32-Way F 0.5 MQS, 1.2 OCS Series(PU with GY Inner Connector)

Terminal Part Information

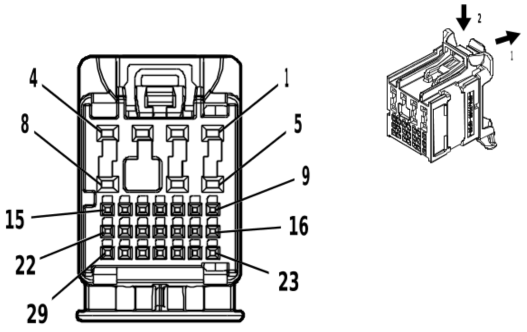
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58

K9 Body Control Module X7

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 8	—	—	—	Not Occupied	—	—
9	0.35	YE / WH	900	Cavity Seal	I	—
10 - 18	—	—	—	Not Occupied	—	—
19	0.35	GN / VT	2857	Body Control Module LIN Bus 11	I	—
20	0.35	YE / BK	901	Cavity Seal	I	—
21	—	—	—	Not Occupied	—	—
22	0.35	YE / BU	902	Cavity Seal	I	—
23 - 32	—	—	—	Not Occupied	—	—

K9 Body Control Module X8

FIGURESIO=6217542 Owner=Owner, Schematics LMD=26-Jan-2023



4578560

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35364137
Service Connector: 13534971
Description: 29-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(GY)

Terminal Part Information

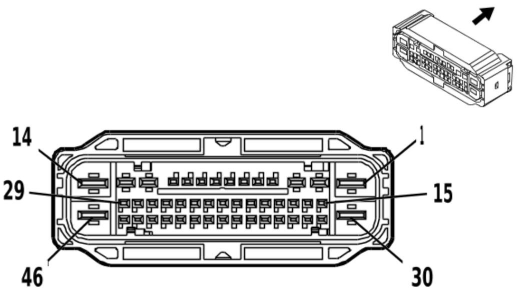
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

K9 Body Control Module X8

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.75	BU / YE	1091	Left Rear Door Lock Actuator Lock Control	II	—
4	0.75	YE / GN	2682	Right Front Door Lock Actuator Lock Control	II	—
5 - 8	—	—	—	Not Occupied	—	—
9	0.35	GN / BK	4304	Passive Entry Right Front Door Antenna Signal Low	I	—
10	0.35	GN / YE	4303	Passive Entry Right Front Door Antenna Signal High	I	—
11 - 16	—	—	—	Not Occupied	—	—
17	0.35	GN / YE	2862	Body Control Module LIN Bus 16	I	—
18	0.35	GN / WH	2854	Body Control Module LIN Bus 8	I	—
19 - 27	—	—	—	Not Occupied	—	—
28	0.35	GY / VT	2676	Right Front Door Exterior Switch Unlock Signal	I	—
29	0.35	GN / GY	6135	Body Control Module LIN Bus 4	I	—

K17 Electronic Brake Control Module

FIGURESIO=6217597 Owner=Owner, Schematics LMD=27-Jan-2023



4162046

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33222138
Service Connector: 19333026
Description: 46-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13575368	J-35616-35 (VT)	J-38125-36
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	84634921	J-35616-42 (RD)	J-38125-212

K17 Electronic Brake Control Module

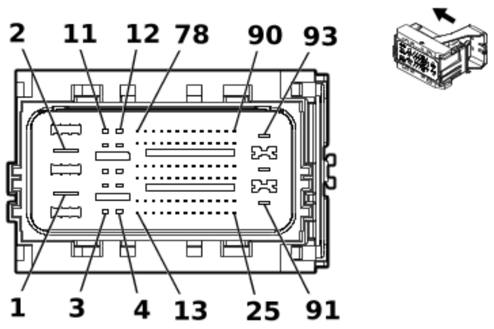
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	6	RD / WH	1642	Battery Positive Voltage	III	—
2	2.5	WH	2001	Left Park Brake Motor Apply Control	I	—
3	2.5	GY / BK	4369	Left Park Brake Motor Low Reference	I	—
4	0.5	GY / WH	7064	Left Front Wheel Speed Sensor Control	II	—
5	0.5	GY	830	Left Front Wheel Speed Sensor Signal	II	—
6	—	—	—	Not Occupied	—	—
7	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
8	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
9	0.5	VT / WH	239	Run/Crank Ignition 1 Voltage	II	—
10	0.5	GY / BN	7065	Right Front Wheel Speed Sensor Control	II	—
11	0.5	YE	872	Right Front Wheel Speed Sensor Signal	II	—
12	2.5	GN / VT	1988	Right Park Brake Motor Apply Control	I	—
13	2.5	GY	4368	Right Park Brake Motor Low Reference	I	—
14	4	BK	150	Ground	III	—
15	0.5	GY / BK	7127	Left Rear Wheel Speed Sensor Control	II	—
16	0.5	BU	884	Left Rear Wheel Speed Sensor Signal	II	—
17 - 18	—	—	—	Not Occupied	—	—
19	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—

K17 Electronic Brake Control Module (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
20	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
21 - 22	—	—	—	Not Occupied	—	—
23	0.5	GN / YE	2731	Brake System Control Module LIN Bus 1	II	—
24 - 25	—	—	—	Not Occupied	—	—
26	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	II	—
27	0.5	GN / GY	333	Brake Fluid Level Signal	II	—
28	0.5	GY / YE	7128	Right Rear Wheel Speed Sensor Control	II	—
29	0.5	VT	882	Right Rear Wheel Speed Sensor Signal	II	—
30	6	RD / WH	1040	Battery Positive Voltage	III	—
31 - 32	—	—	—	Not Occupied	—	—
33	0.35	YE	10280	Private Steering Angle CAN Bus [+] Serial Data	II	—
34	0.35	BU / WH	10279	Private Steering Angle CAN Bus [-] Serial Data	II	—
35	0.5	GN / BU	2733	Brake System Control Module LIN Bus 2	II	—
36	0.35	GN / GY	817	Vehicle Speed Signal	II	—
37 - 38	—	—	—	Not Occupied	—	—
39	0.5	BN / BU	1602	Front Brake Pad Wear Sensor Signal	II	—
40	0.5	GN / YE	1616	Rear Brake Pad Wear Sensor Signal	II	—
41	—	—	—	Not Occupied	—	—
42	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	II	—
43	0.35	GN / BN	2087	Multi-axis Acceleration Sensor Supply Voltage	II	—
44	0.5	WH / BK	2223	Trailer Brake Apply Signal	II	—
45	0.5	YE / BK	2224	Trailer Brake Enable Signal	II	—
46	4	BK	250	Ground	III	—

K20 Engine Control Module X1 (L5P)

FIGURESIO=6217543 Owner=Owner, Schematics LMD=07-Apr-2023



6173672

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35659436
Service Connector: Service by Harness - See Part Catalog
Description: 93-Way F 0.5, 1.2, 2.8, 6.3 MX GENV Series, Sealed(BK with BU Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19355735	J-35616-4A (PU)	J-38125-215A
II	Not required	No Tool Required	No Tool Required

K20 Engine Control Module X1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	4	BK / WH	251	Signal Ground	II	—
2	4	VT / BU	5290	Powertrain Main Relay Fused Supply Voltage 1	II	—
3	0.75	RD / BN	440	Battery Positive Voltage	II	—
4	0.75	VT / GN	439	Run/Crank Ignition 1 Voltage	II	—
5	0.5	BU / GN	11437	Secondary Fuel Pump Disable Signal	II	—
6	0.5	GN / GY	465	Fuel Pump Primary Relay Control	II	—
7	0.5	BN / BU	2926	Exhaust Aftertreatment Fuel Injector High Control	II	—
8	0.5	YE	5991	Powertrain Relay Coil Control	II	—
9	0.5	VT / BN	2927	Exhaust Aftertreatment Fuel Injector Low Control	II	—
10	0.5	BN	3099	Diesel Exhaust Fluid Dosing Valve High Control	II	—
11	0.5	GN / BU	3889	Powertrain Sensor Bus Relay Control	II	—
12	0.5	BN / WH	3100	Diesel Exhaust Fluid Dosing Valve Low Control	II	—
13	0.5	BN / YE	11438	Power Take Off Wakeup Signal	II	PTO
14	0.5	WH / BK	2366	Cooling Fan Speed Control Signal	II	—
15	0.5	BU	3017	Fuel Heater Relay 1 Control	II	—
16	0.5	WH / GY	459	Air Conditioning Compressor Clutch Relay Control	II	—
17	—	—	—	Not Occupied	—	—

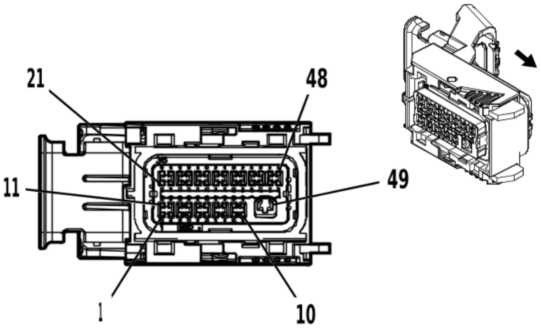
K20 Engine Control Module X1 (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
18	0.5	YE / WH	1161	Accelerator Pedal Position Signal 1	II	—
19	0.5	WH / RD	1164	Accelerator Pedal Position 5V Reference 1	II	—
20	0.5	BN / RD	1274	Accelerator Pedal Position 5V Reference 2	II	—
21	0.5	GN / WH	1162	Accelerator Pedal Position Signal 2	II	—
22	—	—	—	Not Occupied	—	—
23	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	II	—
24	0.5	WH	4976	AUTOSAR CAN Bus [-] 3 Serial Data	II	—
25	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
26 - 27	—	—	—	Not Occupied	—	—
28	0.5	GN / BN	507	Wait To Start Indicator Control	II	—
29 - 30	—	—	—	Not Occupied	—	—
31	0.5	BK / BU	1271	Accelerator Pedal Position Low Reference 1	II	—
32	—	—	—	Not Occupied	—	—
33	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	II	—
34	0.5	BK / VT	1272	Accelerator Pedal Position Low Reference 2	II	—
35	—	—	—	Not Occupied	—	—
36	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	II	—
37	0.5	BU / BK	4977	AUTOSAR CAN Bus [+] 3 Serial Data	II	—
38	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
39	0.5	BN	25	Charge Indicator Control	II	—
40	—	—	—	Not Occupied	—	—
41	0.5	BU / VT	2364	Cooling Fan Speed Signal	II	—
42 - 43	—	—	—	Not Occupied	—	—
44	0.5	BU / GY	636	Ambient Air Temperature Sensor Signal	II	—
45	0.5	WH / GN	5380	Brake Position Sensor Signal	II	—
46	0.5	YE	4063	Hood Status A Signal	II	—
47	0.5	GN	380	Air Conditioning Refrigerant Pressure Sensor Signal	II	—
48 - 51	—	—	—	Not Occupied	—	—
52	0.5	YE / BK	625	Starter Enable Relay Control	II	—
53	—	—	—	Not Occupied	—	—
54	0.5	GN / YE	3337	Transmission Internal Mode Switch Mode Control Y	II	—
55	0.5	GY	23	Generator Field Duty Cycle Signal	II	—
56	0.5	BU	492	Mass Air Flow Sensor Signal	II	—
57 - 61	—	—	—	Not Occupied	—	—
62	0.5	GN / VT	4621	Engine Control Module LIN Bus 1	II	—
63	0.5	GN / WH	4622	Engine Control Module LIN Bus 2	II	—
64 - 66	—	—	—	Not Occupied	—	—
67	0.5	WH / GN	6142	Power Take-Off Engine Shutdown Signal	II	PTO
68 - 72	—	—	—	Not Occupied	—	—
73	0.5	BU	10290	Exhaust Gas Temperature Sensor SENT 2 Signal	II	—

K20 Engine Control Module X1 (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
74	0.5	YE	10291	Exhaust Gas Temperature Sensor SENT 3 Signal	II	—
75 - 76	—	—	—	Not Occupied	—	—
77	0.5	WH / BN	2363	Exhaust Pressure Sensor SENT 1 Signal	II	—
78	0.5	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	II	—
79	0.5	YE / RD	10595	Engine Control Vehicle Sensors 5 Volt Reference 2	II	—
80 - 91	—	—	—	Not Occupied	—	—
92	2.5	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	I	—
93	2.5	VT / BU	5290	Powertrain Main Relay Fused Supply Voltage 1	I	—

K20 Engine Control Module X1 (L8T) FIGURESIO=6217544 Owner=Owner, Schematics LMD=26-Jan-2023



4596458

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33315785
Service Connector: 19368142
Description: 49-Way F 0.64, 2.8 Series, Sealed(BK with BU Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13587518	J-35616-35 (VT)	J-38125-11A
II	19351723	J-35616-64B (L-BU)	J-38125-213

K20 Engine Control Module X1 (L8T)

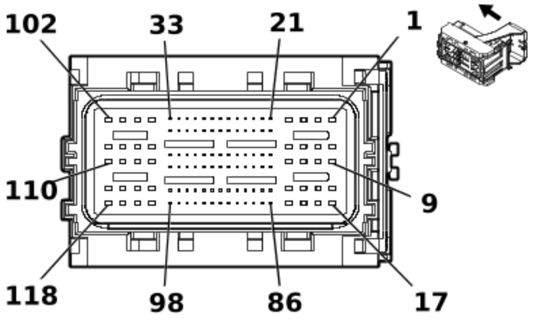
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	492	Mass Air Flow Sensor Signal	II	—
2	—	—	—	Not Occupied	—	—
3	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	II	—
4	—	—	—	Not Occupied	—	—
5	0.5	WH	4976	AUTOSAR CAN Bus [-] 3 Serial Data	II	—
6	—	—	—	Not Occupied	—	—
7	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
8	—	—	—	Not Occupied	—	—
9	0.5	YE	5991	Powertrain Relay Coil Control	II	—
10	—	—	—	Not Occupied	—	—
11	0.5	YE	4063	Hood Status A Signal	II	—
12	0.5	BU / GY	636	Ambient Air Temperature Sensor Signal	II	—
13	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	II	—
14	0.5	WH / GN	5380	Brake Position Sensor Signal	II	—
15	0.5	BU / BK	4977	AUTOSAR CAN Bus [+] 3 Serial Data	II	—
16	—	—	—	Not Occupied	—	—
17	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—

K20 Engine Control Module X1 (L8T) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
18	0.5	WH / GY	459	Air Conditioning Compressor Clutch Relay Control	II	—
19 - 20	—	—	—	Not Occupied	—	—
21	0.5	GN / BU	428	EVAP Canister Purge Solenoid Control	II	—
22	0.5	BU / GN	11437	Secondary Fuel Pump Disable Signal	II	—
23	—	—	—	Not Occupied	—	—
24	0.5	BK / BU	1271	Accelerator Pedal Position Low Reference 1	II	—
25 - 26	—	—	—	Not Occupied	—	—
27	0.5	GN / YE	3337	Transmission Internal Mode Switch Mode Control Y	II	—
28	0.5	BN / GN	1174	Oil Level Switch Signal	II	—
29	—	—	—	Not Occupied	—	—
30	0.5	BK / VT	1272	Accelerator Pedal Position Low Reference 2	II	—
31	—	—	—	Not Occupied	—	—
32	0.75	VT / BU	5291	Powertrain Main Relay Fused Supply Voltage 2	II	—
33	—	—	—	Not Occupied	—	—
34	0.5	RD / BN	440	Battery Positive Voltage	II	—
35	—	—	—	Not Occupied	—	—
36	0.5	YE / BK	625	Starter Enable Relay Control	II	—
37	0.5	GN / GY	465	Fuel Pump Primary Relay Control	II	—
38	0.5	WH / RD	1164	Accelerator Pedal Position 5V Reference 1	II	—
39	0.5	YE / WH	1161	Accelerator Pedal Position Signal 1	II	—
40	0.5	YE / BN	331	Oil Pressure Sensor Signal	II	—
41	0.5	GN	380	Air Conditioning Refrigerant Pressure Sensor Signal	II	—
42	0.5	YE / GY	11029	Canister Vapor Pressure Sensor Signal	II	—
43	—	—	—	Not Occupied	—	—
44	0.5	GN / WH	1162	Accelerator Pedal Position Signal 2	II	—
45	0.5	BN / RD	1274	Accelerator Pedal Position 5V Reference 2	II	—
46	—	—	—	Not Occupied	—	—
47	0.5	VT / GN	439	Run/Crank Ignition 1 Voltage	II	—
48	0.75	VT / BU	5290	Powertrain Main Relay Fused Supply Voltage 1	II	—
49	2.5	VT / BU	5290	Powertrain Main Relay Fused Supply Voltage 1	I	—

K20 Engine Control Module X2 (L5P)

FIGURESIO=6217545 Owner=Owner, Schematics LMD=07-Apr-2023



6166536

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13552796
Service Connector: Service by Harness - See Part Catalog
Description: 118-Way F 50, 120 TPX Series, Sealed(BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K20 Engine Control Module X2 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / WH	4901	Direct Fuel Injector High Voltage Supply Cylinder 1	I	—
2	0.75	BU / WH	4904	Direct Fuel Injector High Voltage Supply Cylinder 4	I	—
3	0.75	BU / GY	4902	Direct Fuel Injector High Voltage Supply Cylinder 2	I	—
4	0.75	GN / WH	4905	Direct Fuel Injector High Voltage Supply Cylinder 5	I	—
5	0.5	YE	581	Throttle Actuator Open Control	I	—
6	0.5	WH / VT	5764	Exhaust Gas Recirculation Valve High Control	I	—
7	0.5	VT / BK	5746	Exhaust Gas Recirculation Valve Low Control	I	—
8	0.5	BK / BU	10597	Engine Control Sensors Low Reference 3	I	—
9	0.5	BN / WH	582	Throttle Actuator Close Control	I	—
10	0.5	BN / VT	3656	EGR Cooler Bypass Valve Close Control	I	—
11	0.5	YE / GN	3655	EGR Cooler Bypass Valve Open Control	I	—
12	—	—	—	Not Occupied	—	—
13	0.5	BU / WH	2530	Fuel Rail Pressure Solenoid Valve Control	I	—
14 - 16	—	—	—	Not Occupied	—	—
17	0.5	YE	2928	Fuel Metering Solenoid Valve High Control	I	—
18 - 20	—	—	—	Not Occupied	—	—
21	0.5	GN	10289	Exhaust Gas Temperature Sensor SENT 1 Signal	I	—

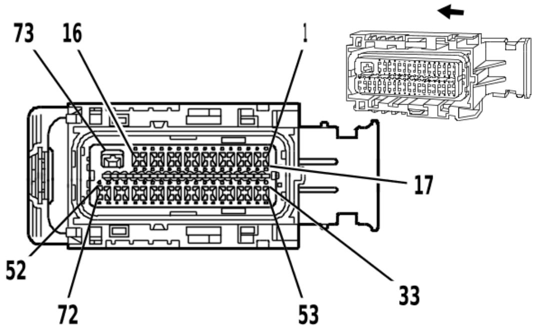
K20 Engine Control Module X2 (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
22	0.5	BU / WH	3630	Throttle Position Sensor SENT 1 Signal	I	—
23 - 25	—	—	—	Not Occupied	—	—
26	0.5	GN / WH	432	Manifold Absolute Pressure Sensor Signal	I	—
27	0.5	YE / BN	331	Oil Pressure Sensor Signal	I	—
28	0.5	WH / BU	7329	Pre-Throttle Air Temperature Signal	I	—
29	0.5	BU	410	Engine Coolant Temperature Sensor Signal	I	—
30	0.5	BN	3681	Charge Air Cooler Outlet Temperature Sensor Signal	I	—
31	0.5	GN	3683	Charge Air Cooler Inlet Temperature Sensor Signal	I	—
32 - 38	—	—	—	Not Occupied	—	—
39	0.5	BU / WH	2918	Fuel Rail Pressure Sensor Signal	I	—
40	0.5	BN / WH	5763	Exhaust Gas Recirculation Position Signal	I	—
41	0.5	GN / GY	3654	EGR Cooler Bypass Valve Position Sensor Signal	I	—
42 - 59	—	—	—	Not Occupied	—	—
60	0.5	BN / GN	1174	Oil Level Switch Signal	I	—
61 - 63	—	—	—	Not Occupied	—	—
64	0.5	BK / GN	2919	Fuel Rail Pressure Sensor Low Reference	I	—
65 - 76	—	—	—	Not Occupied	—	—
77	0.5	BN / YE	2161	Fuel Rail Pressure Sensor 2 Signal	I	—
78	0.5	BK / YE	6275	Exhaust Gas Recirculation Temperature Sensor 2 Low Reference	I	—
79 - 82	—	—	—	Not Occupied	—	—
83	0.5	BK / GY	5296	Exhaust Camshaft Position Sensor Low Reference 1	I	—
84	0.5	GN	6271	Crankshaft Position Sensor Signal	I	—
85	0.5	BK / VT	6272	Crankshaft Position Sensor Low Reference	I	—
86 - 89	—	—	—	Not Occupied	—	—
90	0.5	BN / RD	2917	Fuel Rail Pressure Sensor 5V Reference	I	—
91	0.5	YE / GN	3236	Exhaust Gas Recirculation Temperature Sensor 2 Signal	I	—
92 - 95	—	—	—	Not Occupied	—	—
96	0.5	VT / BU	6270	Crankshaft Position Sensor Voltage	I	—
97	0.5	VT / BK	5273	Exhaust Camshaft Position Sensor 1	I	—
98	0.5	GY / YE	5297	Exhaust Camshaft Position Sensor 1 Voltage Reference	I	—
99	0.75	WH / YE	4907	Direct Fuel Injector High Voltage Supply Cylinder 7	I	—
100	0.75	VT / GY	4906	Direct Fuel Injector High Voltage Supply Cylinder 6	I	—
101	0.75	GY / WH	4908	Direct Fuel Injector High Voltage Supply Cylinder 8	I	—
102	0.75	GN / GY	4903	Direct Fuel Injector High Voltage Supply Cylinder 3	I	—
103	0.75	BN	4801	Direct Fuel Injector High Voltage Control Cylinder 1	I	—
104	0.75	GY / BU	4804	Direct Fuel Injector High Voltage Control Cylinder 4	I	—

K20 Engine Control Module X2 (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
105	0.75	BU	4802	Direct Fuel Injector High Voltage Control Cylinder 2	I	—
106	0.75	WH / GN	4805	Direct Fuel Injector High Voltage Control Cylinder 5	I	—
107	0.75	YE / GY	4807	Direct Fuel Injector High Voltage Control Cylinder 7	I	—
108	0.75	VT / GN	4806	Direct Fuel Injector High Voltage Control Cylinder 6	I	—
109	0.75	GY	4808	Direct Fuel Injector High Voltage Control Cylinder 8	I	—
110	0.75	GN	4803	Direct Fuel Injector High Voltage Control Cylinder 3	I	—
111	0.5	BU / RD	460	Engine Control Sensors 5 Volt Reference 1	I	—
112	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	I	—
113 - 114	—	—	—	Not Occupied	—	—
115	0.5	GY / RD	10667	Engine Control Sensors 5 Volt Reference	I	—
116	0.5	BK / GN	580	Engine Control Sensors Low Reference 2	I	—
117	0.5	BK / YE	2834	Fuel Rail Pressure Solenoid Valve Low Control	I	—
118	0.5	BN / BK	2929	Fuel Metering Solenoid Valve Low Control	I	—

K20 Engine Control Module X2 (L8T) FIGURESIO=6217546 Owner=Owner, Schematics LMD=26-Jan-2023



1673472

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 15499466
Service Connector: 19333090
Description: 73-Way F 0.64, 2.8 Series, Sealed(BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13587518	J-35616-35 (VT)	J-38125-11A
II	19354746	J-35616-64B (L-BU)	J-38125-215A

K20 Engine Control Module X2 (L8T)

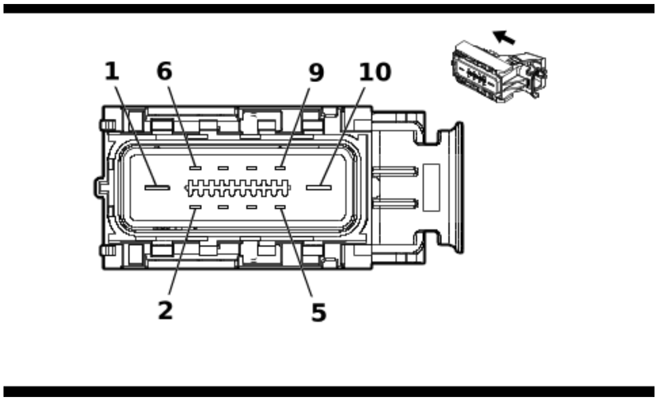
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / YE	3212	HO2S Heater Low Control Bank 2 Sensor 1	II	—
2	—	—	—	Not Occupied	—	—
3	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	II	—
4 - 6	—	—	—	Not Occupied	—	—
7	0.5	GN / WH	4622	Engine Control Module LIN Bus 2	II	—
8	0.5	GN / VT	4621	Engine Control Module LIN Bus 1	II	—
9	—	—	—	Not Occupied	—	—
10	0.5	VT / GY	3110	HO2S High Signal Bank 1 Sensor 1	II	—
11	0.5	WH / BK	3111	HO2S Low Signal Bank 1 Sensor 1	II	—
12	0.5	YE / BU	2124	Ignition Control 4	II	—
13	0.5	BN / BU	2126	Ignition Control 6	II	—
14 - 16	—	—	—	Not Occupied	—	—
17	0.5	GY / WH	3113	HO2S Heater Low Control Bank 1 Sensor 1	II	—
18 - 25	—	—	—	Not Occupied	—	—
26	0.5	VT / WH	3210	HO2S High Signal Bank 2 Sensor 1	II	—
27	0.5	YE / WH	3211	HO2S Low Signal Bank 2 Sensor 1	II	—
28	0.5	GN / BU	2123	Ignition Control 3	II	—
29	0.5	BU / GY	2125	Ignition Control 5	II	—
30	0.5	BK / GY	2130	Ignition Control Low Reference Bank 2	II	—

K20 Engine Control Module X2 (L8T) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
31 - 32	—	—	—	Not Occupied	—	—
33	0.5	WH / BN	3223	HO2S Heater Low Control Bank 2 Sensor 2	II	—
34	—	—	—	Not Occupied	—	—
35	0.5	BU	179	Engine Oil Pump Control	II	—
36	—	—	—	Not Occupied	—	—
37	0.5	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	II	—
38	—	—	—	Not Occupied	—	—
39	0.5	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	II	—
40 - 45	—	—	—	Not Occupied	—	—
46	0.5	YE / BU	3221	HO2S Low Signal Bank 2 Sensor 2	II	—
47	0.5	VT / GN	3220	HO2S High Signal Bank 2 Sensor 2	II	—
48 - 49	—	—	—	Not Occupied	—	—
50	0.5	BK / GY	2303	Knock Sensor Low Reference 2	II	—
51	0.5	BK / YE	1716	Knock Sensor Low Reference 1	II	—
52	0.5	BN / WH	582	Throttle Actuator Close Control	II	—
53	0.5	GY / WH	3122	HO2S Heater Low Control Bank 1 Sensor 2	II	—
54 - 65	—	—	—	Not Occupied	—	—
66	0.5	WH / YE	3121	HO2S Low Signal Bank 1 Sensor 2	II	—
67	0.5	BN	3120	HO2S High Signal Bank 1 Sensor 2	II	—
68 - 69	—	—	—	Not Occupied	—	—
70	0.5	WH / GY	1876	Knock Sensor 2 Signal	II	—
71	0.5	VT / GY	496	Knock Sensor 1 Signal	II	—
72	0.5	YE	581	Throttle Actuator Open Control	II	—
73	2.5	BK / WH	251	Signal Ground	I	—

K20 Engine Control Module X3 (L5P)

FIGURESIO=6217547 Owner=Owner, Schematics LMD=07-Apr-2023



6168487

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 12684811
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 2.8, 6.3 APEX Series, Sealed(BK with GY Terminal Position Assurance)

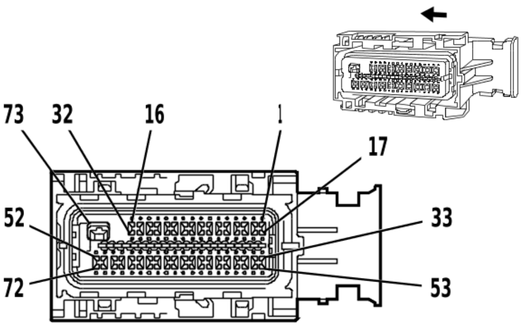
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K20 Engine Control Module X3 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	6	BN / BU	104	Glow Plug Control	I	—
2	2.5	GY / BU	1581	Glow Plug 1 Control	I	—
3	2.5	WH / BK	1587	Glow Plug 7 Control	I	—
4	2.5	GY / YE	1584	Glow Plug 4 Control	I	—
5	2.5	GY / WH	1586	Glow Plug 6 Control	I	—
6	2.5	GY / BN	1582	Glow Plug 2 Control	I	—
7	2.5	WH / BU	1588	Glow Plug 8 Control	I	—
8	2.5	GY / WH	1585	Glow Plug 5 Control	I	—
9	2.5	GY / GN	1583	Glow Plug 3 Control	I	—
10	6	BN / BU	104	Glow Plug Control	I	—

K20 Engine Control Module X3 (L8T) FIGURESIO=6217548 Owner=Owner, Schematics LMD=26-Jan-2023



1650395

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 15497996
Service Connector: 19333091
Description: 73-Way F 0.64, 2.8 Series, Sealed(BK with GY Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13587518	J-35616-35 (VT)	J-38125-11A
II	19354746	J-35616-64B (L-BU)	J-38125-215A

K20 Engine Control Module X3 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 4	—	—	—	Not Occupied	—	—
5	0.5	VT / BN	5284	Intake Camshaft Position Actuator Solenoid Valve 1	II	—
6	0.5	VT / GN	4320	Powertrain Sensor Bus Enable	II	—
7	—	—	—	Not Occupied	—	—
8	0.5	YE / VT	5275	Intake Camshaft Position Sensor 1	II	—
9	0.5	GY / BU	5300	Intake Camshaft Position Sensor 1 Voltage Reference	II	—
10	0.5	GN	6271	Crankshaft Position Sensor Signal	II	—
11	—	—	—	Not Occupied	—	—
12	0.5	BU / WH	2122	Ignition Control 2	II	—
13	0.5	VT / WH	2128	Ignition Control 8	II	—
14	0.5	BN	25	Charge Indicator Control	II	—
15	—	—	—	Not Occupied	—	—
16	0.75	YE	7301	High Pressure Fuel Pump High Control	II	—
17 - 20	—	—	—	Not Occupied	—	—
21	0.5	BK / BN	6753	Camshaft Position Actuator Solenoid Valve W Low Reference	II	—
22 - 23	—	—	—	Not Occupied	—	—
24	0.5	BK / GN	5301	Intake Camshaft Position Sensor Low Reference 1	II	—

K20 Engine Control Module X3 (L8T) (cont'd)

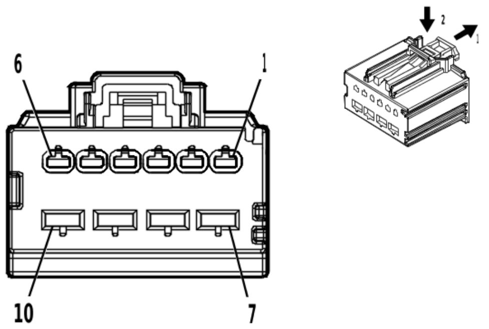
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
25	0.5	VT / BU	6270	Crankshaft Position Sensor Voltage	II	—
26	0.5	BK / VT	6272	Crankshaft Position Sensor Low Reference	II	—
27	—	—	—	Not Occupied	—	—
28	0.5	GN / GY	2127	Ignition Control 7	II	—
29	0.5	BU / VT	2121	Ignition Control 1	II	—
30	0.5	BK / BU	2129	Ignition Control Low Reference Bank 1	II	—
31	—	—	—	Not Occupied	—	—
32	0.75	VT / BK	7300	High Pressure Fuel Pump Low Control	II	—
33 - 35	—	—	—	Not Occupied	—	—
36	0.5	BK / BN	2752	Throttle Position Sensor Low Reference	II	—
37	0.5	BK / GN	469	Manifold Absolute Pressure Sensor Low Reference	II	—
38 - 39	—	—	—	Not Occupied	—	—
40	0.5	BN / BU	357	Oil Temperature Sensor Signal	II	—
41 - 42	—	—	—	Not Occupied	—	—
43	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	II	—
44	0.75	VT / BU	5292	Powertrain Main Relay Fused Supply Voltage 3	II	—
45	0.75	GN	4803	Direct Fuel Injector High Voltage Control Cylinder 3	II	—
46	0.75	GY / BU	4804	Direct Fuel Injector High Voltage Control Cylinder 4	II	—
47	0.75	WH / GN	4805	Direct Fuel Injector High Voltage Control Cylinder 5	II	—
48	0.75	VT / GN	4806	Direct Fuel Injector High Voltage Control Cylinder 6	II	—
49	0.75	BU	4802	Direct Fuel Injector High Voltage Control Cylinder 2	II	—
50	0.75	YE / GY	4807	Direct Fuel Injector High Voltage Control Cylinder 7	II	—
51	0.75	GY	4808	Direct Fuel Injector High Voltage Control Cylinder 8	II	—
52	0.75	BN	4801	Direct Fuel Injector High Voltage Control Cylinder 1	II	—
53 - 54	—	—	—	Not Occupied	—	—
55	0.5	BN / RD	2701	Throttle Position Sensor 5V Reference	II	—
56	0.5	BU / WH	3630	Throttle Position Sensor SENT 1 Signal	II	—
57	0.5	GY / RD	2704	Manifold Absolute Pressure Sensor 5V Reference	II	—
58	0.5	GN / WH	432	Manifold Absolute Pressure Sensor Signal	II	—
59 - 60	—	—	—	Not Occupied	—	—
61	0.5	BU	410	Engine Coolant Temperature Sensor Signal	II	—
62	—	—	—	Not Occupied	—	—
63	0.5	BU / WH	10786	Fuel Rail Pressure Sensor SENT 1 Signal	II	—
64	0.5	GY	23	Generator Field Duty Cycle Signal	II	—
65	0.75	GN / GY	4903	Direct Fuel Injector High Voltage Supply Cylinder 3	II	—
66	0.75	BU / WH	4904	Direct Fuel Injector High Voltage Supply Cylinder 4	II	—

K20 Engine Control Module X3 (L8T) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
67	0.75	GN / WH	4905	Direct Fuel Injector High Voltage Supply Cylinder 5	II	—
68	0.75	VT / GY	4906	Direct Fuel Injector High Voltage Supply Cylinder 6	II	—
69	0.75	BU / GY	4902	Direct Fuel Injector High Voltage Supply Cylinder 2	II	—
70	0.75	WH / YE	4907	Direct Fuel Injector High Voltage Supply Cylinder 7	II	—
71	0.75	GY / WH	4908	Direct Fuel Injector High Voltage Supply Cylinder 8	II	—
72	0.75	BN / WH	4901	Direct Fuel Injector High Voltage Supply Cylinder 1	II	—
73	2.5	BK / WH	251	Signal Ground	I	—

K29FV Front Seat Heater Vent Control Module X1 (KA1&KQV)

FIGURESIO=6217549 Owner=Owner, Schematics LMD=26-Jan-2023



5035058

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger

OEM Connector: 31372-1600

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 1.5, 2.8 MX Series(BK)

Terminal Part Information

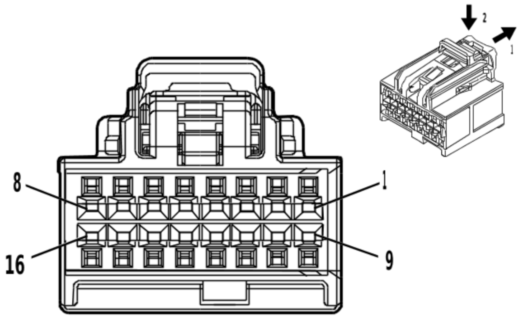
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required

K29FV Front Seat Heater Vent Control Module X1 (KA1&KQV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH / BN	2481	Passenger Seat Back Heating Element Control	I	—
2	0.75	BN / BU	2479	Passenger Seat Heating Element Control	I	—
3	0.75	GY / BK	2480	Passenger Seat Heating Element Low Reference	I	—
4	0.75	BN / BK	2078	Driver Seat Heating Element Low Reference	I	—
5	0.75	BN	2432	Driver Seat Back Heating Element Control	I	—
6	0.75	BN / VT	2077	Driver Seat Heating Element Control	I	—
7	0.75	RD / GN	6140	Battery Positive Voltage	II	—
8	0.75	BK	1350	Ground	II	—
9	—	—	—	Not Occupied	—	—
10	0.75	RD / BN	6640	Battery Positive Voltage	II	—

K29FV Front Seat Heater Vent Control Module X2 (KA1&KQV)

FIGURESIO=6217550 Owner=Owner, Schematics LMD=26-Jan-2023



4873243

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 35016343
Service Connector: Service by Harness - See Part Catalog
Description: 16-Way F 0.64 OCS Series(BK)

Terminal Part Information

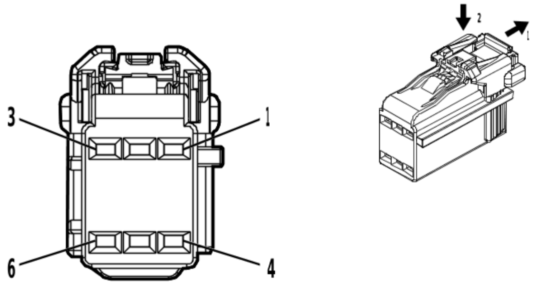
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K29FV Front Seat Heater Vent Control Module X2 (KA1&KQV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / YE	2080	Driver Heated Seat Thermistor Low Reference	I	—
2	0.5	BK / GY	2435	Passenger Heated Seat Thermistor Low Reference	I	—
3	0.5	BU	2425	Driver Seat Back Heating Temperature Sensor Signal	I	—
4	0.5	WH / BU	2436	Passenger Seat Back Heating Temperature Sensor Signal	I	—
5	0.5	WH / GY	2434	Passenger Seat Heating Temperature Sensor Signal	I	—
6	0.5	YE / GY	2079	Driver Seat Heating Temperature Sensor Signal	I	—
7	—	—	—	Not Occupied	—	—
8	0.5	GN / VT	2857	Body Control Module LIN Bus 11	I	—
9	0.5	GN / VT	5906	Driver Seat Blower Motor Control 1	I	—
10	0.5	VT / WH	5908	Passenger Seat Blower Motor Control 1	I	—
11	—	—	—	Not Occupied	—	—
12	0.5	BK / GN	2482	Passenger Heated Back Thermistor Low Reference	I	—
13 - 16	—	—	—	Not Occupied	—	—

K32 Heated Steering Wheel Module X1 (KI3 & N57 & D07)

FIGURESIO=6257992 Owner=Owner, Schematics
LMD=26-Jan-2023



4862126

Connector Part Information

Harness Type: Steering Wheel Horn Switch Wiring Harness
OEM Connector: 13532426
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 1.2 Series(BK)

Terminal Part Information

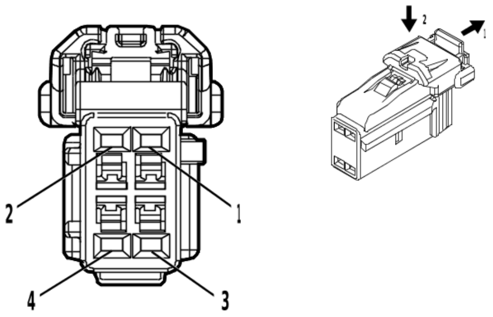
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (L-GN)	No Tool Required

K32 Heated Steering Wheel Module X1 (KI3 & N57 & D07)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE / GY	5883	Steering Wheel Heating Switch Signal	I	—
2	0.35	BN / WH	5884	Steering Wheel Heating Switch LED Control	I	—
3	0.5	RD / GN	10040	Battery Positive Voltage	I	—
4	0.5	BK	6050	Steering Wheel Ground	I	—
5	0.35	BK / WH	6051	Steering Wheel Ground	I	—
6	0.35	GN / BK	2858	Body Control Module LIN Bus 12	I	—

K32 Heated Steering Wheel Module X2 (KI3 - UKL)

FIGURESIO=6257994 Owner=Owner, Schematics LMD=26-Jan-2023



4872683

Connector Part Information

Harness Type: Steering Wheel Heater
OEM Connector: 13533335
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.2 Series(BK)

Terminal Part Information

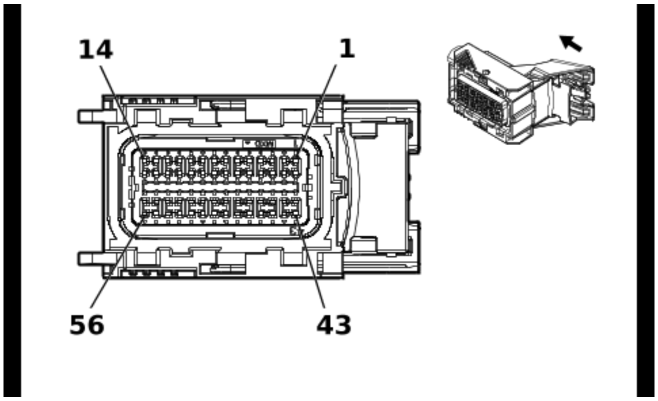
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K32 Heated Steering Wheel Module X2 (KI3 - UKL)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH / YE	5888	Steering Wheel Heating High Control	I	—
2	0.75	GY / YE	5887	Steering Wheel Heating Low Control	I	—
3	0.35	VT / BU	5886	Steering Wheel Heating Temperature Sensor Signal	I	—
4	0.35	YE / RD	5885	Steering Wheel Heating Voltage Reference	I	—

K36 Restraints Control Module X1

FIGURESIO=6217551 Owner=Owner, Schematics LMD=26-Jan-2023



5377109

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35280988
Service Connector: 26314571
Description: 56-Way F 0.64 Series, Sealed(BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19354746	J-35616-64B (L-BU)	J-38125-215A

K36 Restraints Control Module X1

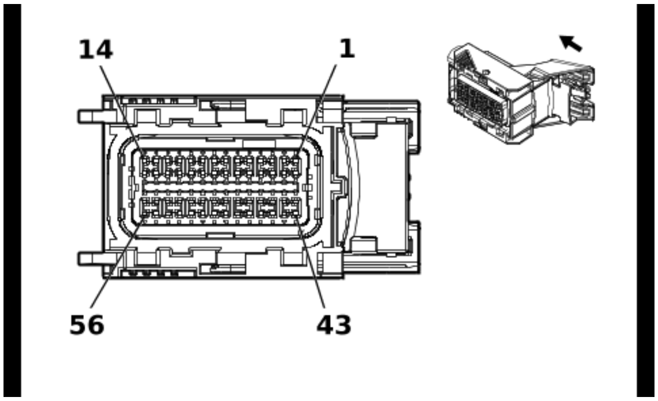
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 6	—	—	—	Not Occupied	—	—
7	0.5	BK / OG	5045	Left Front Impact Discriminating Sensor Low Reference	I	—
8	0.5	OG / YE	354	Left Front Impact Discriminating Sensor Signal	I	—
9	0.5	OG / GN	1409	Right Front Impact Discriminating Sensor Signal	I	—
10	0.5	BK / OG	5600	Right Front Impact Discriminating Sensor Low Reference	I	—
11	0.5	WH / OG	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	—
12	0.5	OG / GN	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	—
13	0.35	YE / OG	3025	Passenger Instrument Panel Air Bag Stage 1 High Control	I	—
14	0.35	OG / WH	3024	Passenger Instrument Panel Air Bag Stage 1 Low Control	I	—
15 - 24	—	—	—	Not Occupied	—	—
25	0.5	VT / OG	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	—
26	0.5	OG / WH	3477	Driver Seat Belt Retractor Pretensioner High Control	I	—
27	0.35	OG / VT	3021	Steering Wheel Air Bag Stage 1 High Control	I	—
28	0.35	BN / OG	3020	Steering Wheel Air Bag Stage 1 Low Control	I	—
29	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—

K36 Restraints Control Module X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
30	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
31	—	—	—	Not Occupied	—	—
32	0.5	OG / BN	3479	Passenger Seat Belt Anchor Pretensioner High Control	I	—
33	0.5	GY / OG	3480	Passenger Seat Belt Anchor Pretensioner Low Control	I	—
34 - 37	—	—	—	Not Occupied	—	—
38	0.35	OG / VT	3026	Passenger Instrument Panel Air Bag Stage 2 Low Control	I	—
39	0.35	GY / OG	3027	Passenger Instrument Panel Air Bag Stage 2 High Control	I	—
40 - 41	—	—	—	Not Occupied	—	—
42	0.5	BK / WH	1251	Signal Ground	I	—
43	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
44	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
45	—	—	—	Not Occupied	—	—
46	0.5	VT / OG	3482	Driver Seat Belt Anchor Pretensioner Low Control	I	—
47	0.5	OG / YE	3481	Driver Seat Belt Anchor Pretensioner High Control	I	—
48 - 49	—	—	—	Not Occupied	—	—
50	0.35	BN / WH	3895	Roof Rail Air Bag Disable Switch Low Reference	I	—
51	0.35	BU / WH	3119	Roof Rail Air Bag Disable Switch Signal	I	—
52	—	—	—	Not Occupied	—	—
53	0.35	WH / OG	3022	Steering Wheel Air Bag Stage 2 Low Control	I	—
54	0.35	OG / GN	3023	Steering Wheel Air Bag Stage 2 High Control	I	—
55	0.35	VT / WH	239	Run/Crank Ignition 1 Voltage	I	—
56	0.5	RD / GN	4440	Battery Positive Voltage	I	—

K36 Restraints Control Module X2

FIGURESIO=6217552 Owner=Owner, Schematics LMD=26-Jan-2023



5377124

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35280986
Service Connector: 85004498
Description: 56-Way F 0.64 Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19354746	J-35616-64B (L-BU)	J-38125-215A

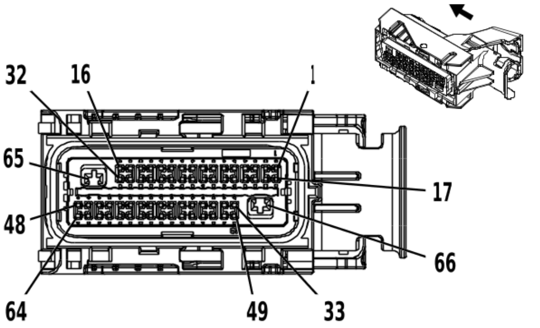
K36 Restraints Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 9	—	—	—	Not Occupied	—	—
10	0.5	BU / OG	5163	Rear Center Seat Belt Switch Signal	I	—
11	0.5	YE / OG	5161	Left Rear Seat Belt Switch Signal	I	—
12	0.35	OG / BN	238	Driver Seat Belt Switch Signal	I	—
13	0.5	BK / OG	6627	Right Rear Side Impact Sensor Low Reference	I	—
14	0.5	OG / WH	6626	Right Rear Side Impact Sensor Signal	I	—
15 - 22	—	—	—	Not Occupied	—	—
23	0.5	BK / OG	1363	Driver Seat Belt Switch Low Reference	I	—
24	0.5	BN / OG	5162	Right Rear Seat Belt Switch Signal	I	—
25	0.35	OG / VT	1362	Passenger Seat Belt Switch Signal	I	—
26	—	—	—	Not Occupied	—	—
27	0.5	BK / OG	6628	Left Front Side Impact Sensor Low Reference	I	—
28	0.5	OG / GN	2132	Left Front Side Impact Sensor Signal	I	—
29 - 36	—	—	—	Not Occupied	—	—
37	0.5	OG / GY	5021	Right Front Roof Rail Air Bag High Control	I	—
38	0.5	WH / OG	5022	Right Front Roof Rail Air Bag Low Control	I	—
39	0.5	BU / OG	4957	Passenger Seat Back Air Bag Low Control	I	—
40	0.5	OG / GY	4956	Passenger Seat Back Air Bag High Control	I	—
41	0.5	BK / OG	6629	Right Front Side Impact Sensor Low Reference	I	—
42	0.5	BN / OG	2134	Right Front Side Impact Sensor Signal	I	—

K36 Restraints Control Module X2 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
43 - 50	—	—	—	Not Occupied	—	—
51	0.5	OG / GN	5019	Left Front Roof Rail Air Bag High Control	I	—
52	0.5	VT / OG	5020	Left Front Roof Rail Air Bag Low Control	I	—
53	0.5	BK / OG	4963	Driver Seat Back Air Bag Low Control	I	—
54	0.5	OG / BU	4962	Driver Seat Back Air Bag High Control	I	—
55	0.5	BK / OG	6623	Left Rear Side Impact Sensor Low Reference	I	—
56	0.5	OG / BU	6622	Left Rear Side Impact Sensor Signal	I	—

K38 Chassis Control Module FIGURESIO=6217553 Owner=Owner, Schematics LMD=26-Jan-2023



3621452

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13965710
Service Connector: 19329822
Description: 66-Way F 0.64, 2.8 Series, Sealed(BK with BK Terminal Position Assurance)

Terminal Part Information

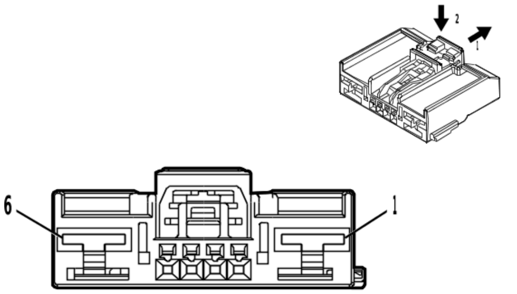
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13587518	J-35616-35 (VT)	J-38125-11A
II	19351723	J-35616-64B (L-BU)	J-38125-213

K38 Chassis Control Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 5	—	—	—	Not Occupied	—	—
6	0.5	VT / WH	639	Run/Crank Ignition 1 Voltage	II	—
7 - 12	—	—	—	Not Occupied	—	—
13	0.5	YE / GN	7122	Axle Differential Lock Switch Signal	II	—
14 - 33	—	—	—	Not Occupied	—	—
34	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
35	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
36	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
37	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
38	0.5	YE	7115	Rear Axle Differential Lock Indicator Control	II	—
39 - 43	—	—	—	Not Occupied	—	—
44	0.75	GY / BK	7253	Rear Differential Lock Actuator Low Control	II	—
45 - 49	—	—	—	Not Occupied	—	—
50	0.75	VT / BN	7258	Rear Differential Lock Actuator Control	II	—
51 - 64	—	—	—	Not Occupied	—	—
65	1.5	BK	1850	Ground	I	—
66	1.5	RD / BN	5940	Battery Positive Voltage	I	—

K40D Driver Seat Adjuster Memory Module X1

FIGURESIO=6217554 Owner=Owner, Schematics LMD=26-Jan-2023



4650258

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 7289-7139-30
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64, 6.3 Series(BK)

Terminal Part Information

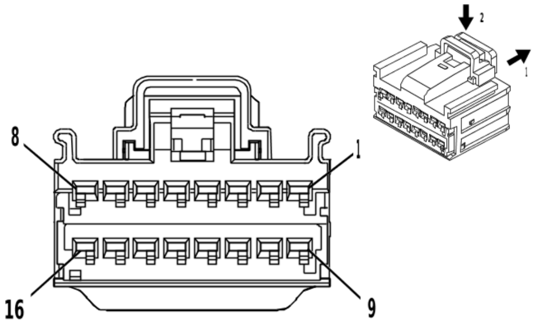
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-64B (L-BU)	No Tool Required

K40D Driver Seat Adjuster Memory Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1550	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	RD / BN	2240	Battery Positive Voltage	II	—
4 - 5	—	—	—	Not Occupied	—	—
6	2.5	RD / YE	5040	Battery Positive Voltage	I	—

K40D Driver Seat Adjuster Memory Module X2

FIGURESIO=6217555 Owner=Owner, Schematics LMD=26-Jan-2023



4332214

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 15512506
Service Connector: Service by Harness - See Part Catalog
Description: 16-Way F 1.5 OCS Series(BK)

Terminal Part Information

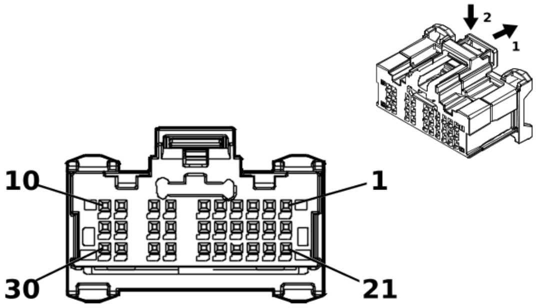
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

K40D Driver Seat Adjuster Memory Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	YE / BU	285	Driver Seat Horizontal Motor Forward Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	GN / YE	276	Driver Seat Recline Motor Forward Control	I	—
4 - 5	—	—	—	Not Occupied	—	—
6	1.5	BU / VT	287	Driver Seat Front Vertical Motor Down Control	I	—
7	1.5	YE	282	Driver Seat Rear Vertical Motor Up Control	I	—
8	—	—	—	Not Occupied	—	—
9	1.5	BU / YE	277	Driver Seat Recline Motor Rearward Control	I	—
10	—	—	—	Not Occupied	—	—
11	1.5	GY / GN	284	Driver Seat Horizontal Motor Rearward Control	I	—
12	—	—	—	Not Occupied	—	—
13	1.5	GY / BU	283	Driver Seat Rear Vertical Motor Down Control	I	—
14 - 15	—	—	—	Not Occupied	—	—
16	1.5	GN / BN	286	Driver Seat Front Vertical Motor Up Control	I	—

K40D Driver Seat Adjuster Memory Module X3

FIGURESIO=6217556 Owner=Owner, Schematics LMD=26-Jan-2023



5202284

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 2309644-1
Service Connector: Service by Harness - See Part Catalog
Description: 30-Way F 0.5 MQS Series(BK)

Terminal Part Information

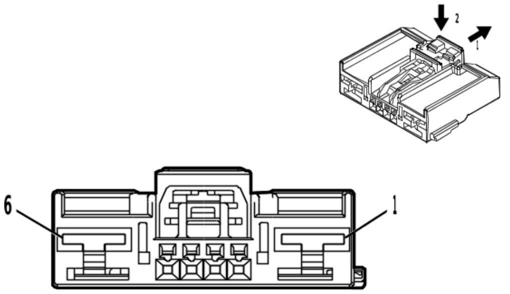
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

K40D Driver Seat Adjuster Memory Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	BU / GN	614	Seat Memory Switch Set Signal	I	—
3 - 4	—	—	—	Not Occupied	—	—
5	0.35	BN	3038	Driver Seat Right Rear Haptic Movement Motor Control	I	—
6	0.35	YE / BN	3037	Driver Seat Left Rear Haptic Movement Motor Control	I	—
7	—	—	—	Not Occupied	—	—
8	0.35	GN / WH	7530	Driver Seat Adjuster Memory Module LIN Bus 1	I	—
9	0.35	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
10	0.35	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
11 - 15	—	—	—	Not Occupied	—	—
16	0.35	WH	615	Seat Memory Switch Signal 1	I	—
17	—	—	—	Not Occupied	—	—
18	0.35	GN / GY	3758	Driver Seat Adjuster Memory Module LIN Bus 2	I	—
19	0.35	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
20	0.35	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
21 - 30	—	—	—	Not Occupied	—	—

K40P Passenger Seat Adjuster Memory Module X1 (A45)

FIGURESIO=6217557 Owner=Owner, Schematics
LMD=26-Jan-2023



4650258

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 7289-7139-30
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64, 6.3 Series(BK)

Terminal Part Information

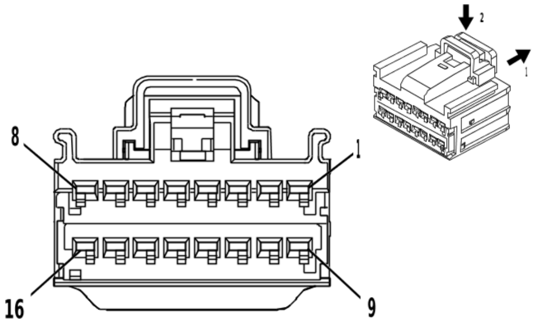
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-64B (L-BU)	No Tool Required

K40P Passenger Seat Adjuster Memory Module X1 (A45)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1350	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	RD / BN	2240	Battery Positive Voltage	II	—
4 - 5	—	—	—	Not Occupied	—	—
6	2.5	RD / YE	7440	Battery Positive Voltage	I	—

K40P Passenger Seat Adjuster Memory Module X2 (AVU)

FIGURESIO=6217558 Owner=Owner, Schematics
LMD=26-Jan-2023



4332214

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 15512506
Service Connector: Service by Harness - See Part Catalog
Description: 16-Way F 1.5 OCS Series(BK)

Terminal Part Information

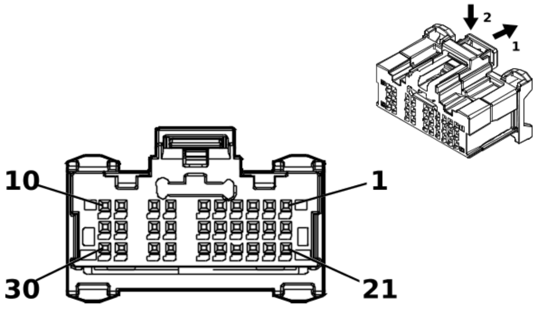
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

K40P Passenger Seat Adjuster Memory Module X2 (AVU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	YE / WH	296	Passenger Seat Horizontal Motor Forward Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	GN	76	Passenger Seat Recline Motor Forward Control	I	—
4 - 5	—	—	—	Not Occupied	—	—
6	1.5	GN / BU	298	Passenger Seat Front Vertical Motor Down Control	I	—
7	1.5	GN / WH	288	Passenger Seat Rear Vertical Motor Up Control	I	—
8	—	—	—	Not Occupied	—	—
9	1.5	BU / BN	77	Passenger Seat Recline Motor Rearward Control	I	—
10	—	—	—	Not Occupied	—	—
11	1.5	YE / BU	290	Passenger Seat Horizontal Motor Rearward Control	I	—
12	—	—	—	Not Occupied	—	—
13	1.5	BU / WH	289	Passenger Seat Rear Vertical Motor Down Control	I	—
14 - 15	—	—	—	Not Occupied	—	—
16	1.5	GN / VT	297	Passenger Seat Front Vertical Motor Up Control	I	—

K40P Passenger Seat Adjuster Memory Module X3 (AVU&(AHH/AKE))

FIGURESIO=6217559 Owner=Owner, Schematics LMD=26-Jan-2023



5202284

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 2309644-1
Service Connector: Service by Harness - See Part Catalog
Description: 30-Way F 0.5 MQS Series(BK)

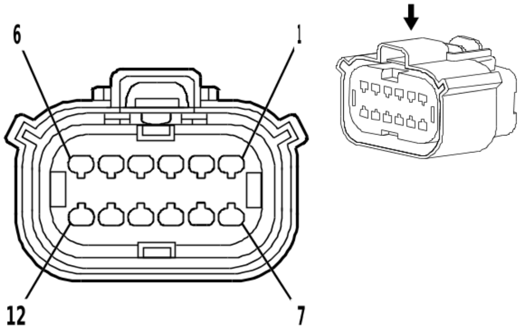
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

K40P Passenger Seat Adjuster Memory Module X3 (AVU&(AHH/AKE))

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 8	—	—	—	Not Occupied	—	—
9	0.35	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
10	0.35	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
11 - 17	—	—	—	Not Occupied	—	—
18	0.35	GN / YE	4116	Passenger Seat Adjuster Memory Module LIN Bus 2	I	—
19	0.35	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
20	0.35	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
21	—	—	—	Not Occupied	—	—
22	0.35	BN / VT	2452	Seat Memory Module Configuration 2	I	—
23	0.35	BN / VT	2452	Seat Memory Module Configuration 2	I	—
24 - 30	—	—	—	Not Occupied	—	—

K43 Power Steering Control Module X1 FIGURESIO=6257996 Owner=Owner, Schematics LMD=26-Jan-2023



1825165

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13595088
Service Connector: 19352907
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

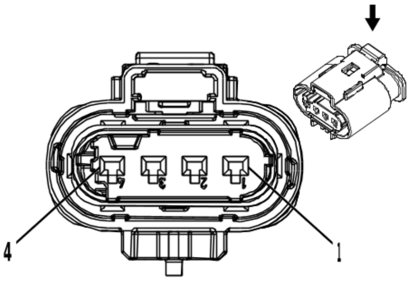
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217

K43 Power Steering Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
2	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
3 - 4	—	—	—	Not Occupied	—	—
5	0.5	RD / WH	5740	Battery Positive Voltage	I	—
6	—	—	—	Not Occupied	—	—
7	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
8	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
9 - 10	—	—	—	Not Occupied	—	—
11	1	BK / WH	1151	Signal Ground	I	—
12	—	—	—	Not Occupied	—	—

K43 Power Steering Control Module X2

FIGURESIO=6257999 Owner=Owner, Schematics LMD=26-Jan-2023



2717079

Connector Part Information

Harness Type: Power Steering Control Module Wiring Harness
OEM Connector: 13503575
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

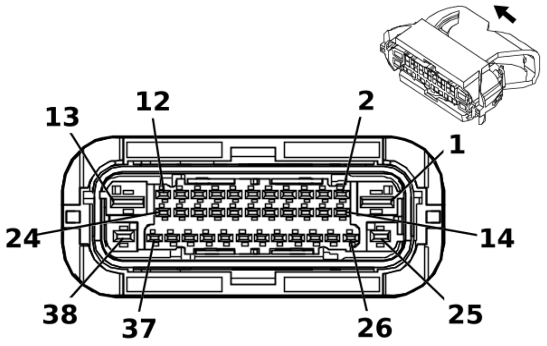
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K43 Power Steering Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	20	RD	3542	Battery Positive Voltage	I	—
2	20	BK	350	Ground	I	—
3 - 4	—	—	—	Not Occupied	—	—

K44 Power Takeoff Control Module X1 (L5P)

FIGURESIO=6217561 Owner=Owner, Schematics LMD=26-Jan-2023



5199902

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35503406
Service Connector: 19329924
Description: 38-Way F 1.5, 2.8, 4.8 MCP Series, Sealed(BK with BK Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368624	J-35616-35 (VT)	J-38125-212
II	19369235	J-35616-14 (GN)	EL-38125-560A
III	85158596	J-35616-40 (BU)	EL-38125-560A

K44 Power Takeoff Control Module X1 (L5P)

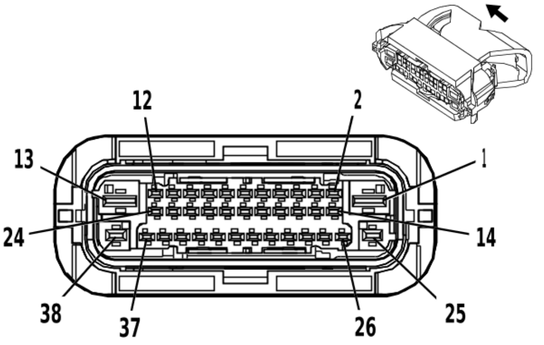
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BU	4540	Battery Positive Voltage	III	—
2 - 12	—	—	—	Not Occupied	—	—
13	1.5	BK / WH	251	Signal Ground	III	—
14	0.5	VT / GN	4320	Powertrain Sensor Bus Enable	II	—
15	0.5	GN / WH	488	Power Take-Off Control Switch Signal	II	—
16 - 17	—	—	—	Not Occupied	—	—
18	0.5	BN / GN	4311	Power Take-Off Enable Cabin Switch Normally Closed Signal	II	—
19 - 21	—	—	—	Not Occupied	—	—
22	0.5	BN / YE	11438	Power Take Off Wakeup Signal	II	—
23 - 24	—	—	—	Not Occupied	—	—
25	0.5	GY / GN	6239	Transmission Power Take-Off Engage/Disengage Signal Power	I	—
26	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	II	—
27	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	II	—
28	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	II	—
29	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	II	—

K44 Power Takeoff Control Module X1 (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
30 - 38	—	—	—	Not Occupied	—	—

K44 Power Takeoff Control Module X2 (L5P)

FIGURESIO=6217562 Owner=Owner, Schematics LMD=26-Jan-2023



5141918

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35497871
Service Connector: 86825459
Description: 38-Way F 1.5, 2.8, 4.8 MCP Series, Sealed(BK with BN Inner Connector)

Terminal Part Information

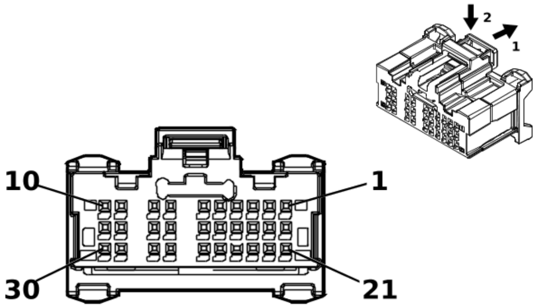
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19369235	J-35616-14 (GN)	EL-38125-560A
II	85158596	J-35616-40 (BU)	EL-38125-560A

K44 Power Takeoff Control Module X2 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 7	—	—	—	Not Occupied	—	—
8	0.5	WH / BK	8238	Power Take Off Upfitter Interlock Switch Signal 2	I	—
9	0.5	GN / WH	8236	Power Take Off Solenoid Control Low	I	—
10	0.5	GN / WH	8236	Power Take Off Solenoid Control Low	I	—
11 - 12	—	—	—	Not Occupied	—	—
13	0.5	BU / WH	8235	Power Take Off Solenoid Control High	II	—
14 - 16	—	—	—	Not Occupied	—	—
17	0.5	BN / WH	8234	Power Take Off Pressure Sensor Signal	I	—
18	0.5	YE	8233	Power Take Off Pressure Sensor Low Reference	I	—
19	0.5	WH	8232	Power Take Off Pressure Sensor 5 Volt Reference	I	—
20 - 27	—	—	—	Not Occupied	—	—
28	0.5	WH / GN	6142	Power Take-Off Engine Shutdown Signal	I	—
29 - 34	—	—	—	Not Occupied	—	—
35	0.5	VT / GN	4308	Power Take-Off Remote Throttle Signal	I	—
36	0.5	BU / BN	4408	Power Take-Off Enable Signal	I	—
37 - 38	—	—	—	Not Occupied	—	—

K56 Serial Data Gateway Module X1

FIGURESIO=6217563 Owner=Owner, Schematics LMD=26-Jan-2023



5202284

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35085331
Service Connector: 84766507
Description: 30-Way F 0.5 MQS Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58

K56 Serial Data Gateway Module X1

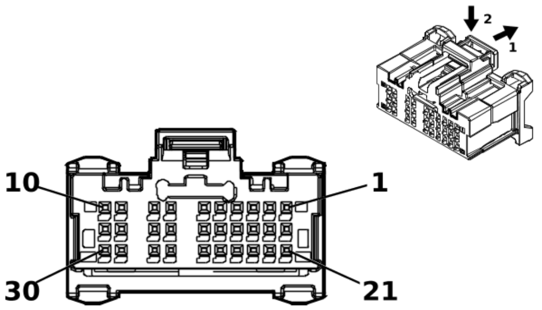
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD / VT	3340	Battery Positive Voltage	I	—
2 - 3	—	—	—	Not Occupied	—	—
4	0.35	BK / WH	851	Signal Ground	I	—
5	0.35	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
6	0.35	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
7	0.35	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
8	0.35	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
9	0.35	WH	4976	AUTOSAR CAN Bus [-] 3 Serial Data	I	—
10	0.35	BU / BK	4977	AUTOSAR CAN Bus [+] 3 Serial Data	I	—
11 - 14	—	—	—	Not Occupied	—	—
15	0.35	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
16	0.35	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
17	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—
18	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
19	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
20	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
21 - 24	—	—	—	Not Occupied	—	—
25	0.35	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
26	0.35	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
27	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—

K56 Serial Data Gateway Module X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
28	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
29	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
30	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—

K56 Serial Data Gateway Module X2

FIGURESIO=6217564 Owner=Owner, Schematics LMD=26-Jan-2023



5203942

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35094158
Service Connector: 84766509
Description: 30-Way F 0.5 MQS Series(BK with L-GY Front Housing)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58

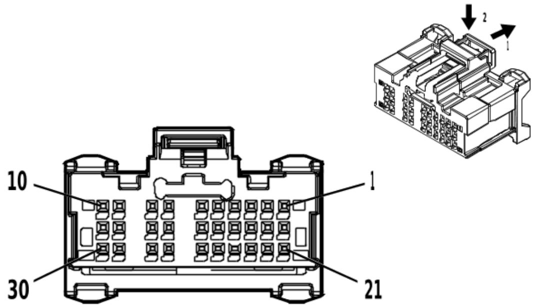
K56 Serial Data Gateway Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 4	—	—	—	Not Occupied	—	—
5	0.35	BK / GY	3559	Passive Start Switch 2 Low Reference	I	—
6	—	—	—	Not Occupied	—	—
7	0.35	GN / VT	5199	Run/Crank Relay Coil Control	I	—
8	—	—	—	Not Occupied	—	—
9	0.35	BU	4973	Ethernet Bus 1R [+]	I	—
10	0.35	YE	4972	Ethernet Bus 1R [-]	I	—
11 - 12	—	—	—	Not Occupied	—	—
13	0.35	BU / BN	4983	AUTOSAR CAN Bus [+] 7 Serial Data	I	—
14	0.35	WH	4982	AUTOSAR CAN Bus [-] 7 Serial Data	I	—
15	0.35	GN / BK	3558	Passive Start Switch Signal 2	I	—
16	0.35	WH	4980	AUTOSAR CAN Bus [-] 6 Serial Data	I	—
17	0.35	GN	2578	Private Serial Data Presentation CAN Bus [+] 1 Serial Data	I	—
18	0.35	BN	2577	Private Serial Data Presentation CAN Bus [-] 1 Serial Data	I	—
19	0.35	WH	7207	Ethernet Bus 1 Enable Signal	I	—
20 - 22	—	—	—	Not Occupied	—	—
23	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
24	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
25	—	—	—	Not Occupied	—	—

K56 Serial Data Gateway Module X2 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
26	0.35	YE	4981	AUTOSAR CAN Bus [+] 6 Serial Data	I	—
27	0.35	VT	2580	Private Serial Data Presentation CAN Bus [+] 2 Serial Data	I	—
28	0.35	GY	2579	Private Serial Data Presentation CAN Bus [-] 2 Serial Data	I	—
29	0.35	BU	4975	Ethernet Bus 1T [+]	I	—
30	0.35	GN	4974	Ethernet Bus 1T [-]	I	—

K56 Serial Data Gateway Module X3 FIGURESIO=6217565 Owner=Owner, Schematics LMD=26-Jan-2023



4900333

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35077574
Service Connector: 13519319
Description: 30-Way F 0.5 MQS Series(BK with D-GY Front Housing)

Terminal Part Information

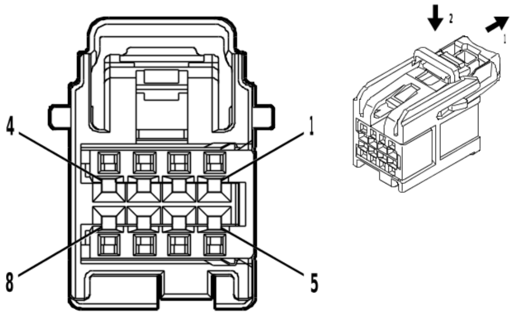
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Service by Cable	No Tool Required	No Tool Required

K56 Serial Data Gateway Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 6	—	—	—	Not Occupied	—	—
7	0.35 0.35	YE BN	4758 7211	Ethernet Bus 2 [+] Ethernet Bus 4 [+]	I I	IOK IOR+ UE1
8	0.35 0.35	BU GY	4757 7210	Ethernet Bus 2 [-] Ethernet Bus 4 [-]	I I	IOK IOR+ UE1
9	0.35	YE	4758	Ethernet Bus 2 [+]	I	—
10	0.35	BU	4757	Ethernet Bus 2 [-]	I	—
11 - 26	—	—	—	Not Occupied	—	—
27	0.35	GN	7217	Ethernet Bus 7 [+]	I	—
28	0.35	WH	7216	Ethernet Bus 7 [-]	I	—
29 - 30	—	—	—	Not Occupied	—	—

K56U Special Purpose Vehicle Control Module

FIGURESIO=6217566 Owner=Owner, Schematics LMD=26-Jan-2023



4935776

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 15526972
Service Connector: 19370429
Description: 8-Way F 0.64 OCS Series(BK)

Terminal Part Information

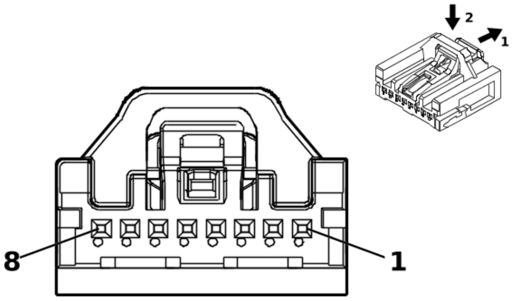
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K56U Special Purpose Vehicle Control Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD / VT	4640	Battery Positive Voltage	I	—
2	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
3	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
4	0.75	BK	1050	Ground	I	—
5 - 8	—	—	—	Not Occupied	—	—

K60 Column Lock Module

FIGURESIO=6217567 Owner=Owner, Schematics LMD=26-Jan-2023



5200269

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35068228
Service Connector: 84769201
Description: 8-Way F Mini 50 Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

K60 Column Lock Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD / VT	3340	Battery Positive Voltage	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	BK	1050	Ground	I	—
4	0.35	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
5	0.35	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
6	0.35	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
7	0.35	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
8	0.35	BU / VT	807	Ignition Off/Accessory Ignition Voltage	I	—

K61 Sunroof Control Module (CF5)

FIGURESIO=6258001 Owner=Owner, Schematics LMD=26-Jan-2023

GRAPHIC
PENDING

6153939

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13590453
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 1.5 OCS Series(BK)

Terminal Part Information

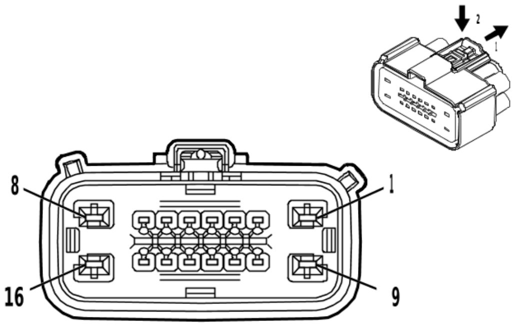
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K61 Sunroof Control Module (CF5)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	—	GN / BN	2854	Body Control Module LIN Bus 8	I	—
8	—	RD / GY	4540	Battery Positive Voltage	I	—
10	—	BK	1050	Ground	I	—

K67 Trailer Brake Control Module

FIGURESIO=6217569 Owner=Owner, Schematics LMD=26-Jan-2023



4624589

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33297568
Service Connector: 13599889
Description: 16-Way F 1.5, 2.8 MX Series, Sealed(GY)

Terminal Part Information

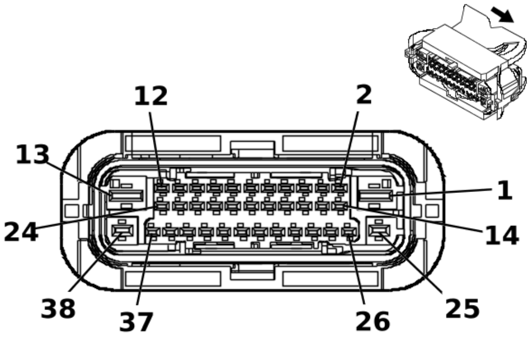
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13576377	J-35616-35 (VT)	J-38125-12A
II	85528055	J-35616-2A (GY)	J-38125-217

K67 Trailer Brake Control Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	RD / BN	3640	Battery Positive Voltage	I	—
2	0.5	WH / BK	2223	Trailer Brake Apply Signal	II	—
3 - 4	—	—	—	Not Occupied	—	—
5	0.5	YE / BK	2224	Trailer Brake Enable Signal	II	—
6 - 7	—	—	—	Not Occupied	—	—
8	2.5	BU	47	Trailer Auxiliary Control	I	—
9	2.5	BK	1850	Ground	I	—
10 - 11	—	—	—	Not Occupied	—	—
12	0.5	GN / BU	2733	Brake System Control Module LIN Bus 2	II	—
13 - 16	—	—	—	Not Occupied	—	—

K68 Trailer Lamp Control Module

FIGURESIO=6217570 Owner=Owner, Schematics LMD=26-Jan-2023



5199340

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35497867
Service Connector: 86825458
Description: 38-Way F 1.5, 2.8, 4.8 MCP Series, Sealed(BK with BN Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368624	J-35616-35 (VT)	J-38125-212
II	19369235	J-35616-14 (GN)	EL-38125-560A
III	85158596	J-35616-40 (BU)	EL-38125-560A

K68 Trailer Lamp Control Module

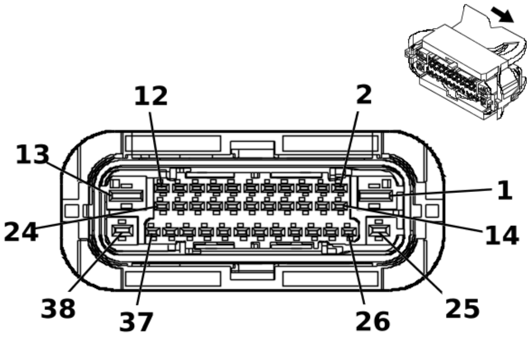
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	RD / VT	5640	Battery Positive Voltage	III	—
2	1	YE	1618	Left Rear Trailer Stop/Turn Lamp Control	II	—
3	1	GN	1619	Right Rear Trailer Stop/Turn Lamp Control	II	—
4 - 6	—	—	—	Not Occupied	—	—
7	1	GY	5189	Trailer Backup Lamp Control	II	—
8 - 9	—	—	—	Not Occupied	—	—
10	0.5	VT / WH	739	Run/Crank Ignition 1 Voltage	II	—
11	0.5	BN / YE	820	Center High Mounted Stop Lamp Supply Voltage	II	—
12	—	—	—	Not Occupied	—	—
13	2.5	BK	1750	Ground	III	—
14 - 24	—	—	—	Not Occupied	—	—
25	1	BN	2109	Trailer Park Lamp Control	I	—
26	—	—	—	Not Occupied	—	—
27	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	II	—
28	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	II	—
29	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	II	—
30	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	II	—
31 - 37	—	—	—	Not Occupied	—	—

K68 Trailer Lamp Control Module (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
38	2.5	RD / YE	5840	Battery Positive Voltage	I	—

K69 Transfer Case Control Module (L5P)

FIGURESIO=6217571 Owner=Owner, Schematics LMD=26-Jan-2023



5199340

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35497867
Service Connector: 86825458
Description: 38-Way F 1.5, 2.8, 4.8 MCP Series, Sealed(BK with BN Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368624	J-35616-35 (VT)	J-38125-212
II	19369235	J-35616-14 (GN)	EL-38125-560A
III	85158596	J-35616-40 (BU)	EL-38125-560A

K69 Transfer Case Control Module (L5P)

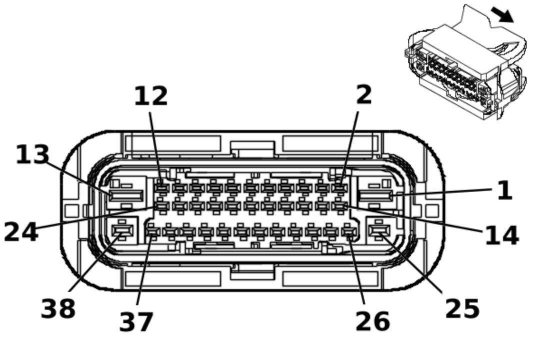
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	3	GN / RD	6042	Cruise Control Switch 5V Reference	III	—
2	—	—	—	Not Occupied	—	—
3	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
4	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
5	0.5	WH / GN	7479	Rotary Position Sensor Signal	II	—
6	—	—	—	Not Occupied	—	—
7	0.5	YE	7474	Incremental Encoder Direction Signal	II	—
8	—	—	—	Not Occupied	—	—
9	0.5	YE / WH	1695	4WD Locked Range Indicator Control	II	—
10	—	—	—	Not Occupied	—	—
11	0.5	VT / GY	8017	Secondary Axle Motor Relay Control	II	—
12	0.5	GY / BK	1570	Front Axle Actuator Control	II	—
13	4	YE / VT	1553	Transfer Case Motor Counter Clockwise Control	III	—
14	—	—	—	Not Occupied	—	—
15	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
16	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
17	—	—	—	Not Occupied	—	—
18	0.5	VT / GN	439	Run/Crank Ignition 1 Voltage	II	—

K69 Transfer Case Control Module (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
19	0.5	BU / GY	7473	Incremental Encoder Impulse Signal	II	—
20	0.5	WH / RD	7477	Gear Position Sensor 5V Reference	II	—
21 - 23	—	—	—	Not Occupied	—	—
24	0.5	GN	8015	Transfer Case Motor Low Reference	II	—
25	2.5	BK	450	Ground	I	—
26	—	—	—	Not Occupied	—	—
27	0.5	GN	8014	Transfer Case Lock Solenoid Low Reference	II	—
28 - 29	—	—	—	Not Occupied	—	—
30	0.5	YE / BK	7478	Gear Position Sensor Low Reference	II	—
31	0.5	WH / GN	7475	Incremental Encoder Sensor Voltage Reference	II	—
32	—	—	—	Not Occupied	—	—
33	0.75	BU	8013	Transfer Case Lock Solenoid Control 2	II	—
34	0.75	YE / BN	1569	Transfer Case Lock Solenoid Valve Control	II	—
35	—	—	—	Not Occupied	—	—
36	0.5	VT	7476	Incremental Encoder Sensor Low Reference	II	—
37	—	—	—	Not Occupied	—	—
38	2.5	YE / GY	1552	Transfer Case Motor Clockwise Control	I	—

K69 Transfer Case Control Module (L8T)

FIGURESIO=6217572 Owner=Owner, Schematics LMD=26-Jan-2023



5199340

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35497867
Service Connector: 86825458
Description: 38-Way F 1.5, 2.8, 4.8 MCP Series, Sealed(BK with BN Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368624	J-35616-35 (VT)	J-38125-212
II	19369235	J-35616-14 (GN)	EL-38125-560A
III	85158596	J-35616-40 (BU)	EL-38125-560A

K69 Transfer Case Control Module (L8T)

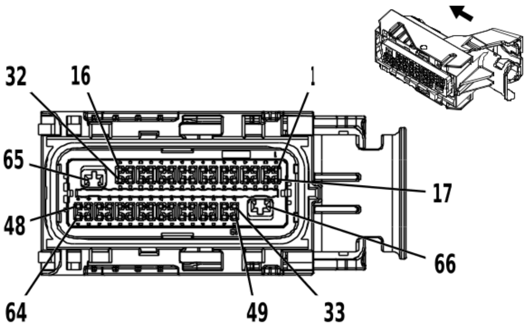
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	3	GN / RD	6042	Cruise Control Switch 5V Reference	III	—
2	—	—	—	Not Occupied	—	—
3	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
4	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
5	0.5	WH / GN	7479	Rotary Position Sensor Signal	II	—
6	—	—	—	Not Occupied	—	—
7	0.5	YE	7474	Incremental Encoder Direction Signal	II	—
8	—	—	—	Not Occupied	—	—
9	0.5	YE / WH	1695	4WD Locked Range Indicator Control	II	—
10	—	—	—	Not Occupied	—	—
11	0.5	VT / GY	8017	Secondary Axle Motor Relay Control	II	—
12	0.5	GY / BK	1570	Front Axle Actuator Control	II	—
13	4	YE / VT	1553	Transfer Case Motor Counter Clockwise Control	III	—
14	—	—	—	Not Occupied	—	—
15	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
16	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
17	—	—	—	Not Occupied	—	—
18	0.5	VT / GN	439	Run/Crank Ignition 1 Voltage	II	—

K69 Transfer Case Control Module (L8T) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
19	0.5	BU / GY	7473	Incremental Encoder Impulse Signal	II	—
20	0.5	WH / RD	7477	Gear Position Sensor 5V Reference	II	—
21 - 23	—	—	—	Not Occupied	—	—
24	0.5	GN	8015	Transfer Case Motor Low Reference	II	—
25	2.5	BK	450	Ground	I	—
26	—	—	—	Not Occupied	—	—
27	0.5	GN	8014	Transfer Case Lock Solenoid Low Reference	II	—
28 - 29	—	—	—	Not Occupied	—	—
30	0.5	YE / BK	7478	Gear Position Sensor Low Reference	II	—
31	0.5	WH / GN	7475	Incremental Encoder Sensor Voltage Reference	II	—
32	—	—	—	Not Occupied	—	—
33	0.75	BU	8013	Transfer Case Lock Solenoid Control 2	II	—
34	0.75	YE / BN	1569	Transfer Case Lock Solenoid Valve Control	II	—
35	—	—	—	Not Occupied	—	—
36	0.5	VT	7476	Incremental Encoder Sensor Low Reference	II	—
37	—	—	—	Not Occupied	—	—
38	2.5	YE / GY	1552	Transfer Case Motor Clockwise Control	I	—

K71 Transmission Control Module (L5P)

FIGURESIO=6217573 Owner=Owner, Schematics LMD=26-Jan-2023



3621452

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 13965710
Service Connector: 19329822
Description: 66-Way F 0.64, 2.8 Series, Sealed(BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13587518	J-35616-35 (VT)	J-38125-11A
II	19351723	J-35616-64B (L-BU)	J-38125-213

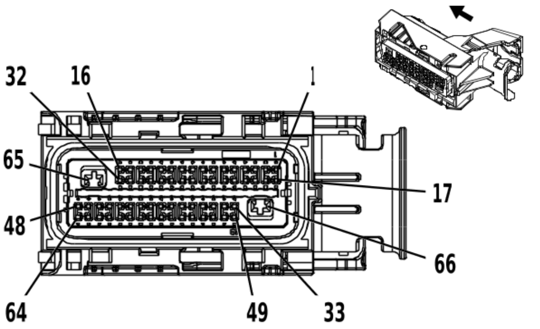
K71 Transmission Control Module (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / WH	422	Torque Converter Clutch Solenoid Valve Control	II	—
2	0.5	GY / GN	6403	Clutch Solenoid Valve D Control	II	—
3	0.5	WH / BU	4507	Transmission Clutch H Control	II	—
4	0.5	WH	4508	Transmission Clutch G Control	II	—
5 - 6	—	—	—	Not Occupied	—	—
7	0.5	YE / GN	4170	Transmission Output Shaft Speed Sensor Circuit 9V Reference	II	—
8	0.5	YE / BU	4171	Transmission Input Shaft Speed Sensor Circuit 9V Reference	II	—
9 - 11	—	—	—	Not Occupied	—	—
12	0.5	GN / YE	6353	Input Speed Signal	II	—
13	0.5	GN / VT	4510	Transmission Intermediate Speed Signal	II	—
14	0.5	GY / BU	6358	Output Speed Signal	II	—
15	0.5	BN / WH	6254	Transmission Input Speed Sensor Signal	II	—
16	—	—	—	Not Occupied	—	—
17	0.5	GN / WH	1530	Transmission Line Pressure Control Solenoid Valve Control	II	—
18	0.5	YE / BN	6404	Clutch Solenoid Valve E Control	II	—
19	0.5	GY	6402	Clutch Solenoid Valve C Control	II	—
20	0.5	VT	4509	Transmission Clutch F Control	II	—

K71 Transmission Control Module (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
21	—	—	—	Not Occupied	—	—
22	0.5	GN / BK	7819	Default Disable Solenoid Control	II	—
23 - 27	—	—	—	Not Occupied	—	—
28	0.5	BK / BN	586	Transmission Fluid Temperature Sensor Low Reference	II	—
29 - 32	—	—	—	Not Occupied	—	—
33	0.5	GN / GY	6387	Transmission High Side Driver 1 Control	II	—
34	—	—	—	Not Occupied	—	—
35	0.5	VT / GN	439	Run/Crank Ignition 1 Voltage	II	—
36	—	—	—	Not Occupied	—	—
37	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
38	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
39 - 48	—	—	—	Not Occupied	—	—
49	0.5	GY / BN	6388	Transmission High Side Driver 2 Control	II	—
50 - 52	—	—	—	Not Occupied	—	—
53	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
54	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
55 - 62	—	—	—	Not Occupied	—	—
63	0.5	BN / WH	585	Transmission Fluid Temperature Sensor Signal	II	—
64	0.5	BU / WH	3338	Transmission Internal Mode Switch Mode Control X	II	—
65	1.5	BK / WH	251	Signal Ground	I	—
66	1.5	RD / GN	1840	Battery Positive Voltage	I	—

K71 Transmission Control Module (L8T) FIGURESIO=6217574 Owner=Owner, Schematics LMD=26-Jan-2023



3621452

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13965710
Service Connector: 19329822
Description: 66-Way F 0.64, 2.8 Series, Sealed(BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13587518	J-35616-35 (VT)	J-38125-11A
II	19351723	J-35616-64B (L-BU)	J-38125-213

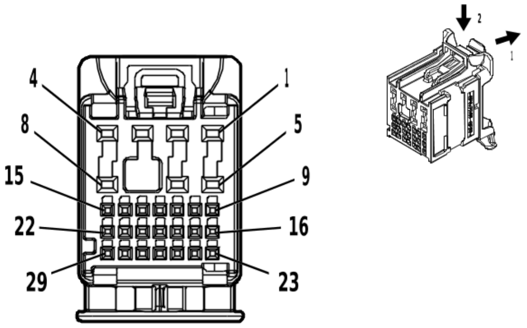
K71 Transmission Control Module (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / WH	422	Torque Converter Clutch Solenoid Valve Control	II	—
2	0.5	GY / GN	6403	Clutch Solenoid Valve D Control	II	—
3	0.5	WH / BU	4507	Transmission Clutch H Control	II	—
4	0.5	WH	4508	Transmission Clutch G Control	II	—
5 - 6	—	—	—	Not Occupied	—	—
7	0.5	YE / GN	4170	Transmission Output Shaft Speed Sensor Circuit 9V Reference	II	—
8	0.5	YE / BU	4171	Transmission Input Shaft Speed Sensor Circuit 9V Reference	II	—
9 - 11	—	—	—	Not Occupied	—	—
12	0.5	GN / YE	6353	Input Speed Signal	II	—
13	0.5	GN / VT	4510	Transmission Intermediate Speed Signal	II	—
14	0.5	GY / BU	6358	Output Speed Signal	II	—
15	0.5	BN / WH	6254	Transmission Input Speed Sensor Signal	II	—
16	—	—	—	Not Occupied	—	—
17	0.5	GN / WH	1530	Transmission Line Pressure Control Solenoid Valve Control	II	—
18	0.5	YE / BN	6404	Clutch Solenoid Valve E Control	II	—
19	0.5	GY	6402	Clutch Solenoid Valve C Control	II	—
20	0.5	VT	4509	Transmission Clutch F Control	II	—

K71 Transmission Control Module (L8T) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
21	—	—	—	Not Occupied	—	—
22	0.5	GN / BK	7819	Default Disable Solenoid Control	II	—
23 - 27	—	—	—	Not Occupied	—	—
28	0.5	BK / BN	586	Transmission Fluid Temperature Sensor Low Reference	II	—
29 - 32	—	—	—	Not Occupied	—	—
33	0.5	GN / GY	6387	Transmission High Side Driver 1 Control	II	—
34	—	—	—	Not Occupied	—	—
35	0.5	VT / GN	439	Run/Crank Ignition 1 Voltage	II	—
36	—	—	—	Not Occupied	—	—
37	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
38	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
39 - 48	—	—	—	Not Occupied	—	—
49	0.5	GY / BN	6388	Transmission High Side Driver 2 Control	II	—
50 - 52	—	—	—	Not Occupied	—	—
53	0.5	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	II	—
54	0.5	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	II	—
55 - 62	—	—	—	Not Occupied	—	—
63	0.5	BN / WH	585	Transmission Fluid Temperature Sensor Signal	II	—
64	0.5	BU / WH	3338	Transmission Internal Mode Switch Mode Control X	II	—
65	1.5	BK / WH	251	Signal Ground	I	—
66	1.5	RD / GN	1840	Battery Positive Voltage	I	—

K73 Telematic Control Module X1 FIGURESIO=6217575 Owner=Owner, Schematics LMD=26-Jan-2023



4496253

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35364134
Service Connector: 13534974
Description: 29-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

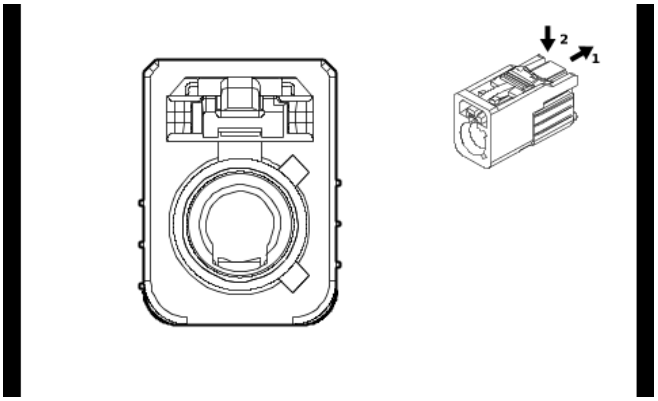
K73 Telematic Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / YE	3040	Battery Positive Voltage	II	—
2 - 3	—	—	—	Not Occupied	—	—
4	0.75	BK / WH	1051	Signal Ground	II	—
5	—	—	—	Not Occupied	—	—
6	0.35	GN / BK	2515	Telematics Switch Supply Voltage	II	—
7 - 8	—	—	—	Not Occupied	—	—
9	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
10	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
11	0.35	GN / WH	2514	Telematics Switch Signal	I	—
12	—	—	—	Not Occupied	—	—
13	0.35	BARE	1792	Low Reference	I	—
14	0.35	BK / GY	5152	Voice Recognition Audio [-] Control	I	—
15	0.35	GY / YE	5149	Voice Recognition Audio Signal	I	—
16	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
17	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
18	—	—	—	Not Occupied	—	—
19	0.35	YE / VT	2516	Telematics Switch Green LED Indicator Control	I	—
20	—	—	—	Not Occupied	—	—
21	0.35	BK / BN	654	Cellular Telephone Microphone Low Reference	I	—

K73 Telematic Control Module X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
22	0.35	BU	655	Cellular Telephone Microphone Signal	I	—
23 - 25	—	—	—	Not Occupied	—	—
26	0.35	BN / WH	2517	Telematics Switch Red LED Indicator Control	I	—
27	—	—	—	Not Occupied	—	—
28	0.35	BN	7211	Ethernet Bus 4 [+]	I	—
29	0.35	GY	7210	Ethernet Bus 4 [-]	I	—

K73 Telematic Control Module X2 FIGURESIO=6217576 Owner=Owner, Schematics LMD=26-Jan-2023



5630760

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340312
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(VT)

Terminal Part Information

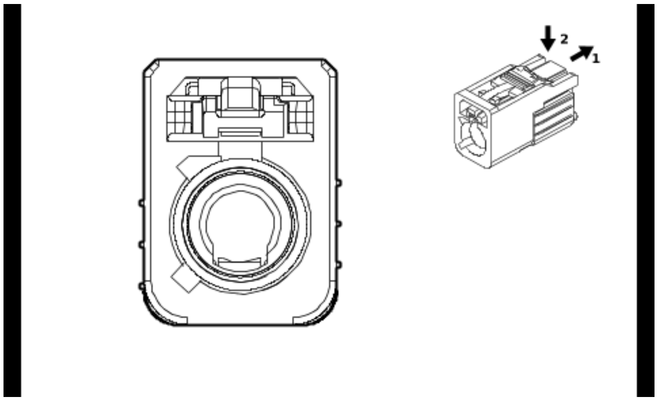
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K73 Telematic Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	(Cell only) Coaxial Antenna Cell Phone Signal	I	—

K73 Telematic Control Module X3

FIGURESIO=6217577 Owner=Owner, Schematics LMD=26-Jan-2023



5630785

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33340314
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BN)

Terminal Part Information

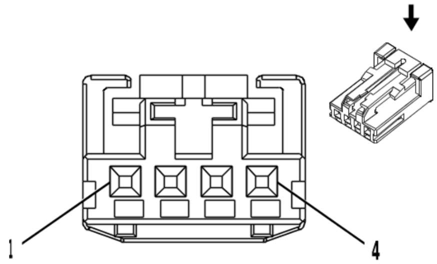
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K73 Telematic Control Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	(GPS/Cell) Coaxial Antenna Cell/GPS combined Signal	I	—

K77 Remote Function Actuator Module

FIGURESIO=6217578 Owner=Owner, Schematics LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 13969166
Service Connector: 19367524
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

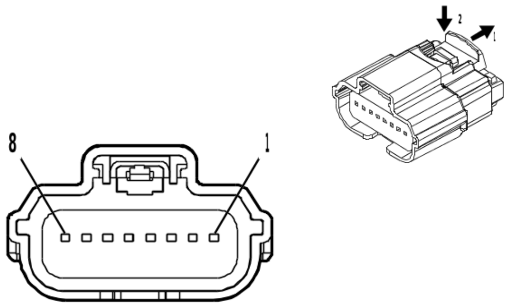
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K77 Remote Function Actuator Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / VT	2640	Battery Positive Voltage	I	—
2	0.5 0.35	GN / YE GN / YE	2862 2862	Body Control Module LIN Bus 16 Body Control Module LIN Bus 16	I I	(AVJ/ AQQ) + UET (AVJ/ AQQ) - UET
3	—	—	—	Not Occupied	—	—
4	0.75	BK / WH	1451	Signal Ground	I	—

K85P Restraints Occupant Classification System Module - Passenger (AL0)

FIGURESIO=6258003 Owner=Owner, Schematics LMD=26-Jan-2023



4708234

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 31404-9110
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 64 Series, Sealed(BK)

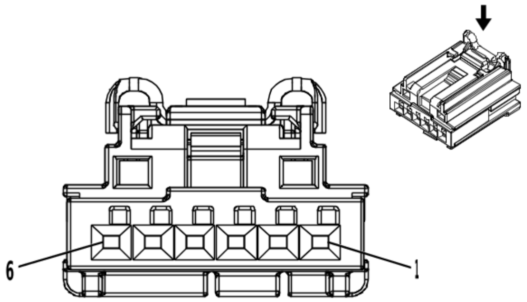
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K85P Restraints Occupant Classification System Module - Passenger (AL0)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / GN	4440	Battery Positive Voltage	I	—
2	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
3	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
4	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
5	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
6	0.5	BK / WH	1251	Signal Ground	I	—
7	0.5	OG / BN	3947	Passenger Automatic Locking Retractor Switch Signal	I	—
8	0.5	GY / OG	3946	Passenger Automatic Locking Retractor Switch Low Reference	I	—

K104D Front Seat Bladder Control Module - Driver FIGURESIO=6217580 Owner=Owner, Schematics LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 2035363-4
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

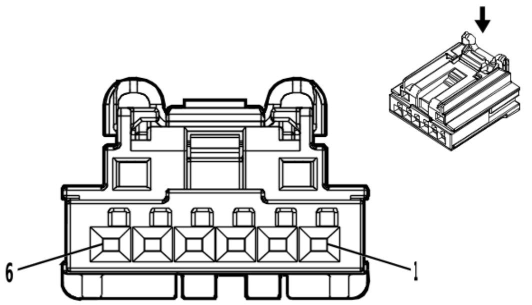
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K104D Front Seat Bladder Control Module - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BN	2240	Battery Positive Voltage	I	—
2	0.5	GN / GY	3758	Driver Seat Adjuster Memory Module LIN Bus 2	I	—
3	0.5	WH / BU	4891	Driver Seat Lumbar/Bolster Pump Control	I	—
4	0.5	BK	1550	Ground	I	—
5	0.5	BN / BK	2305	Driver Seat Bolster Pump Low Reference	I	—
6	0.5	GN / BK	2637	Front Seat Bolster Memory Module - Driver LIN Bus 1	I	—

K104DP Front Seat Bladder Control Module - Driver Primary

FIGURESIO=6217581 Owner=Owner, Schematics LMD=26-Jan-2023



5020940

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 2035363-6
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

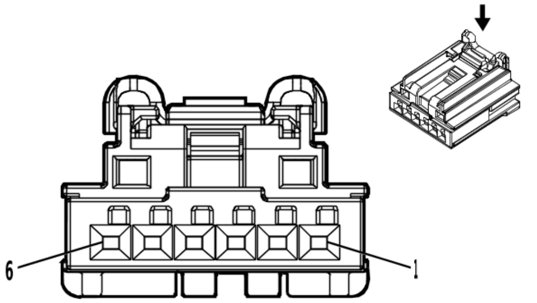
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K104DP Front Seat Bladder Control Module - Driver Primary

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BN	2240	Battery Positive Voltage	I	—
2	0.5	GN / BK	2637	Front Seat Bolster Memory Module - Driver LIN Bus 1	I	—
3	—	—	—	Not Occupied	—	—
4	0.5	BK	1550	Ground	I	—
5 - 6	—	—	—	Not Occupied	—	—

K104DS Front Seat Bladder Control Module - Driver Secondary

FIGURESIO=6258005 Owner=Owner, Schematics LMD=26-Jan-2023



5020940

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13583827
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

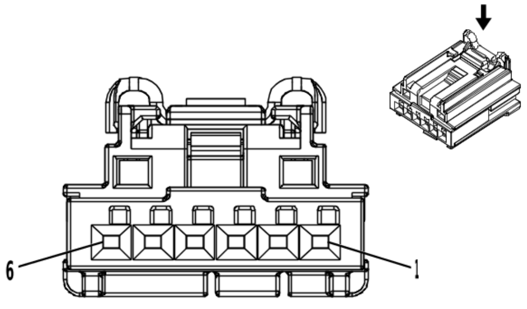
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K104DS Front Seat Bladder Control Module - Driver Secondary

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	RD / BN	2240	Battery Positive Voltage	I	—
2	—	GN / BK	2637	Front Seat Bolster Memory Module - Driver LIN Bus 1	I	—
3	—	—	—	Not Occupied	—	—
4	—	BK	1550	Ground	I	—
5 - 6	—	—	—	Not Occupied	—	—

K104P Front Seat Bladder Control Module - Passenger (AVU-AKE)

FIGURESIO=6217582 Owner=Owner, Schematics LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 2035363-4
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

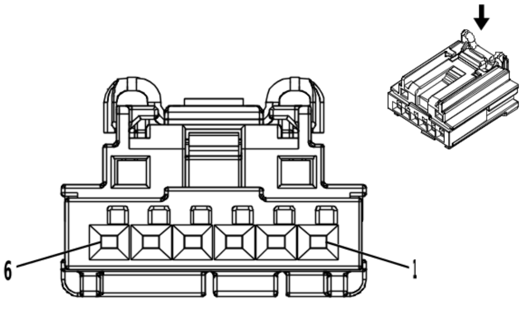
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K104P Front Seat Bladder Control Module - Passenger (AVU-AKE)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BN	2240	Battery Positive Voltage	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	GY / WH	4890	Passenger Seat Lumbar/Bolster Pump Control	I	—
4	0.5	BK	1350	Ground	I	—
5	0.5	BK / BU	2194	Passenger Seat Position Switch Low Reference	I	—
6	0.5	YE / GN	1068	Passenger Seat Lumbar Support Switch Analog Signal	I	—

K104PP Front Seat Bladder Control Module - Passenger Primary (AVU&AKE)

FIGURESIO=6217583 Owner=Owner, Schematics LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 13583825
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

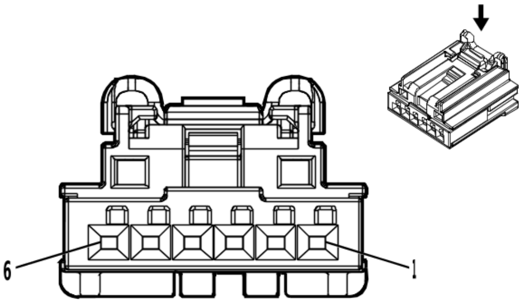
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K104PP Front Seat Bladder Control Module - Passenger Primary (AVU&AKE)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BN	2240	Battery Positive Voltage	I	—
2	0.5	GN / YE	4116	Passenger Seat Adjuster Memory Module LIN Bus 2	I	—
3	0.5	GY / WH	4890	Passenger Seat Lumbar/Bolster Pump Control	I	—
4	0.5	BK	1350	Ground	I	—
5	0.5	GY / BK	2306	Passenger Seat Bolster Pump Low Reference	I	—
6	0.5	GN / BU	2638	Front Seat Bolster Memory Module - Passenger LIN Bus 1	I	—

K104PS Front Seat Bladder Control Module - Passenger Secondary (AVU&AKE)

FIGURESIO=6217584 Owner=Owner, Schematics LMD=26-Jan-2023



5020940

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 13583827
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

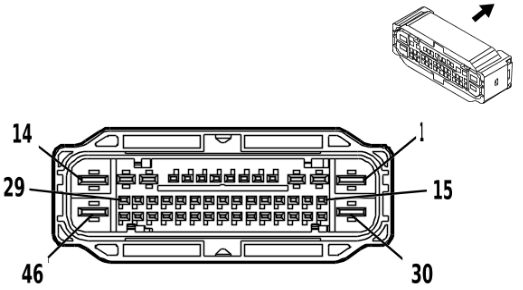
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K104PS Front Seat Bladder Control Module - Passenger Secondary (AVU&AKE)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BN	2240	Battery Positive Voltage	I	—
2	0.5	GN / BU	2638	Front Seat Bolster Memory Module - Passenger LIN Bus 1	I	—
3	—	—	—	Not Occupied	—	—
4	0.5	BK	1350	Ground	I	—
5 - 6	—	—	—	Not Occupied	—	—

K111 Fuel Pump Power Control Module (FHS)

FIGURESIO=6217585 Owner=Owner, Schematics LMD=26-Jan-2023



4162046

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33222138
Service Connector: 19333026
Description: 46-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13575368	J-35616-35 (VT)	J-38125-36
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	84634921	J-35616-42 (RD)	J-38125-212

K111 Fuel Pump Power Control Module (FHS)

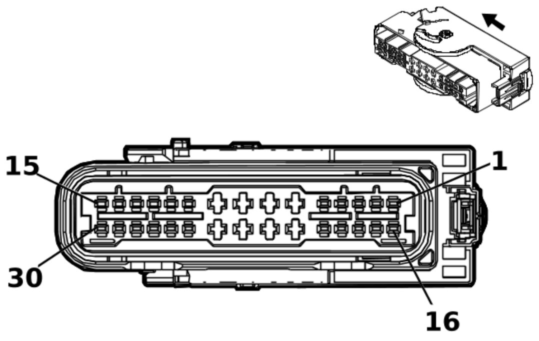
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	III	—
2	2.5	GY	120	Fuel Pump Control	I	—
3	0.5	VT / WH	639	Run/Crank Ignition 1 Voltage	I	—
4	—	—	—	Not Occupied	—	—
5	0.5	BK / GY	3802	Fuel Composition Sensor Low Reference	II	—
6	—	—	—	Not Occupied	—	—
7	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	II	—
8	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	II	—
9	—	—	—	Not Occupied	—	—
10	0.5	VT / GN	4320	Powertrain Sensor Bus Enable	II	—
11	0.5	GN / GY	465	Fuel Pump Primary Relay Control	II	—
12 - 13	—	—	—	Not Occupied	—	—
14	2.5	BK / WH	1951	Signal Ground	III	—
15	0.5	WH	7444	Fuel Pump Assembly Shield Ground	II	—
16	0.5	VT / BN	3803	Fuel Composition Sensor Signal	II	—
17 - 18	—	—	—	Not Occupied	—	—
19	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	II	—

K111 Fuel Pump Power Control Module (FHS) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
20	0.5	BU / WH	7446	Fuel Pressure Sensor Signal	II	—
21	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	II	—
22	—	—	—	Not Occupied	—	—
23	0.5	BK / BN	6284	Fuel Tank Pressure Sensor Low Reference	II	—
24 - 29	—	—	—	Not Occupied	—	—
30	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	III	—
31 - 34	—	—	—	Not Occupied	—	—
35	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	II	—
36	—	—	—	Not Occupied	—	—
37	0.5	BU / GN	1936	Primary Fuel Level Sensor Signal	II	—
38	—	—	—	Not Occupied	—	—
39	0.5	YE / RD	2709	Fuel Tank Pressure Sensor 5V Reference	II	—
40	0.5	BU / GN	890	Fuel Tank Pressure Sensor Signal	II	—
41 - 42	—	—	—	Not Occupied	—	—
43	0.5	WH	1310	EVAP Vent Solenoid Valve Control	II	—
44	—	—	—	Not Occupied	—	—
45	0.5	WH / RD	11031	Fuel Tank Isolation Valve Supply Voltage	II	—
46	2.5	RD / VT	1940	Battery Positive Voltage	III	—

K111 Fuel Pump Power Control Module (L5P)

FIGURESIO=6217586 Owner=Owner, Schematics LMD=26-Jan-2023



3240109

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13551118
Service Connector: 85140064
Description: 30-Way F 1.5, 2.8 MCP Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19329958	J-35616-2A (GY)	J-38125-11A
II	19371214	J-35616-4A (PU)	J-38125-215A

K111 Fuel Pump Power Control Module (L5P)

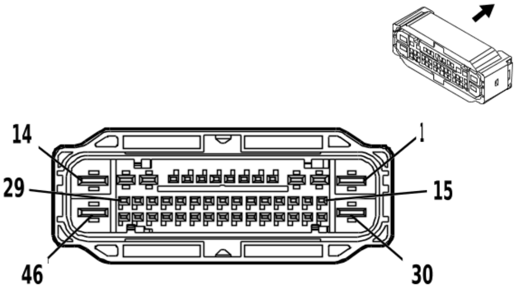
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.5	BU / YE	6861	Water In Fuel Sensor Signal	I	—
3	0.5	BK / BU	6863	Water In Fuel Sensor Low Reference	I	—
4	0.5	BN / GY	7072	Fuel Temperature Sensor 1 Signal	I	—
5 - 6	—	—	—	Not Occupied	—	—
7	2.5	RD / VT	1940	Battery Positive Voltage	II	—
8	2.5	GY	120	Fuel Pump Control	II	—
9	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	II	—
10 - 11	—	—	—	Not Occupied	—	—
12	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	I	—
13	0.5	BU / GN	1936	Primary Fuel Level Sensor Signal	I	—
14	—	—	—	Not Occupied	—	—
15	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	I	—
16	1	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
17	—	—	—	Not Occupied	—	—
18	0.5	GN / GY	465	Fuel Pump Primary Relay Control	I	—
19	0.5	BN / WH	7073	Fuel Temperature Sensor 1 Low Reference	I	—
20 - 21	—	—	—	Not Occupied	—	—
22	2.5	BK / WH	1951	Signal Ground	II	—

K111 Fuel Pump Power Control Module (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
23	0.5	WH	7444	Fuel Pump Assembly Shield Ground	II	—
24	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	II	—
25	—	—	—	Not Occupied	—	—
26	0.5	BU / WH	7446	Fuel Pressure Sensor Signal	I	—
27	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	I	—
28	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	I	—
29	—	—	—	Not Occupied	—	—
30	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	I	—

K111 Fuel Pump Power Control Module (L5P&N2N)

FIGURESIO=6217587 Owner=Owner, Schematics
LMD=26-Jan-2023



4162046

Connector Part Information

Harness Type: Fuel Pump Power Control Module Harness
OEM Connector: 33222138
Service Connector: Service by Harness - See Part Catalog
Description: 46-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-35 (VT)	No Tool Required
III	Not required	J-35616-40 (BU)	No Tool Required

K111 Fuel Pump Power Control Module (L5P&N2N)

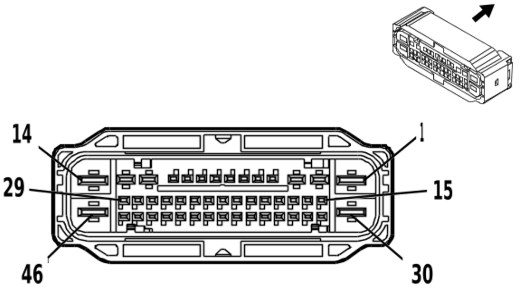
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	III	—
2	2.5	GY	120	Fuel Pump Control	II	—
3	0.5	VT / WH	639	Run/Crank Ignition 1 Voltage	II	—
4 - 5	—	—	—	Not Occupied	—	—
6	0.75	BU / GN	11437	Secondary Fuel Pump Disable Signal	I	—
7	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	I	—
8	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	I	—
9	—	—	—	Not Occupied	—	—
10	0.75	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
11	0.5	GN / GY	465	Fuel Pump Primary Relay Control	I	—
12	—	—	—	Not Occupied	—	—
13	1	BU / GN	2120	Secondary Fuel Pump Control	II	—
14	2.5	BK / WH	1951	Signal Ground	III	—
15	0.75	WH	7444	Fuel Pump Assembly Shield Ground	I	—
16	0.5	BU / YE	6861	Water In Fuel Sensor Signal	I	—
17 - 18	—	—	—	Not Occupied	—	—
19	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	I	—

K111 Fuel Pump Power Control Module (L5P&N2N) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
20	0.75	BU / WH	7446	Fuel Pressure Sensor Signal	I	—
21	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	I	—
22	0.5	BK / BU	6282	Fuel Level Sensor 2 Low Reference	I	—
23	0.5	BK / BU	6863	Water In Fuel Sensor Low Reference	I	—
24	0.5	BN / WH	7073	Fuel Temperature Sensor 1 Low Reference	I	—
25 - 29	—	—	—	Not Occupied	—	—
30	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	III	—
31 - 34	—	—	—	Not Occupied	—	—
35	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	I	—
36	0.5	BN / GY	7072	Fuel Temperature Sensor 1 Signal	I	—
37	0.75	BU / GN	1936	Primary Fuel Level Sensor Signal	I	—
38	0.5	BU / WH	1937	Secondary Fuel Level Sensor Signal	I	—
39 - 43	—	—	—	Not Occupied	—	—
44	1	BK / GN	1580	Fuel Pump Low Reference	I	—
45	—	—	—	Not Occupied	—	—
46	2.5	RD / VT	1940	Battery Positive Voltage	III	—

K111 Fuel Pump Power Control Module (L8T)

FIGURESIO=6217588 Owner=Owner, Schematics LMD=26-Jan-2023



4162046

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33222138
Service Connector: 19333026
Description: 46-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13575368	J-35616-35 (VT)	J-38125-36
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	84634921	J-35616-42 (RD)	J-38125-212

K111 Fuel Pump Power Control Module (L8T)

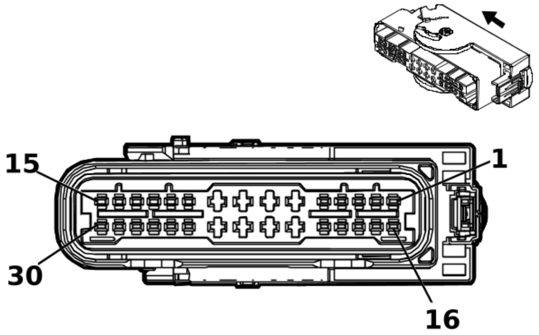
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	III	—
2	2.5	GY	120	Fuel Pump Control	I	—
3	0.5	VT / WH	639	Run/Crank Ignition 1 Voltage	I	—
4 - 6	—	—	—	Not Occupied	—	—
7	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	II	—
8	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	II	—
9	—	—	—	Not Occupied	—	—
10	0.5	VT / GN	4320	Powertrain Sensor Bus Enable	II	—
11	0.5	GN / GY	465	Fuel Pump Primary Relay Control	II	—
12 - 13	—	—	—	Not Occupied	—	—
14	2.5	BK / WH	1951	Signal Ground	III	—
15	0.5	WH	7444	Fuel Pump Assembly Shield Ground	II	—
16 - 18	—	—	—	Not Occupied	—	—
19	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	II	—
20	0.5	BU / WH	7446	Fuel Pressure Sensor Signal	II	—
21	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	II	—
22	—	—	—	Not Occupied	—	—

K111 Fuel Pump Power Control Module (L8T) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
23	0.5	BK / BN	6284	Fuel Tank Pressure Sensor Low Reference	II	—
24 - 29	—	—	—	Not Occupied	—	—
30	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	III	—
31 - 34	—	—	—	Not Occupied	—	—
35	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	II	—
36	—	—	—	Not Occupied	—	—
37	0.5	BU / GN	1936	Primary Fuel Level Sensor Signal	II	—
38	—	—	—	Not Occupied	—	—
39	0.5	YE / RD	2709	Fuel Tank Pressure Sensor 5V Reference	II	—
40	0.5	BU / GN	890	Fuel Tank Pressure Sensor Signal	II	—
41 - 42	—	—	—	Not Occupied	—	—
43	0.5	WH	1310	EVAP Vent Solenoid Valve Control	II	—
44	—	—	—	Not Occupied	—	—
45	0.5	WH / RD	11031	Fuel Tank Isolation Valve Supply Voltage	II	—
46	2.5	RD / VT	1940	Battery Positive Voltage	III	—

K111 Fuel Pump Power Control Module (L8T&N2M)

FIGURESIO=6217589 Owner=Owner, Schematics
LMD=26-Jan-2023



3240109

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13551118
Service Connector: 85140064
Description: 30-Way F 1.5, 2.8 MCP Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19329958	J-35616-2A (GY)	J-38125-11A
II	19371214	J-35616-4A (PU)	J-38125-215A

K111 Fuel Pump Power Control Module (L8T&N2M)

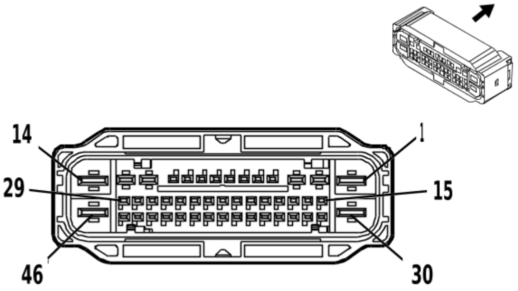
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 6	—	—	—	Not Occupied	—	—
7	2.5	RD / VT	1940	Battery Positive Voltage	II	—
8	2.5	GY	120	Fuel Pump Control	II	—
9	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	II	—
10	0.5	YE / RD	2709	Fuel Tank Pressure Sensor 5V Reference	I	—
11	0.5	BU / GN	890	Fuel Tank Pressure Sensor Signal	I	—
12	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	I	—
13	0.5	BU / GN	1936	Primary Fuel Level Sensor Signal	I	—
14	—	—	—	Not Occupied	—	—
15	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	I	—
16	0.5	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
17	—	—	—	Not Occupied	—	—
18	0.5	GN / GY	465	Fuel Pump Primary Relay Control	I	—
19 - 20	—	—	—	Not Occupied	—	—
21	0.5	WH	1310	EVAP Vent Solenoid Valve Control	II	—
22	2.5	BK / WH	1951	Signal Ground	II	—
23	0.5	WH	7444	Fuel Pump Assembly Shield Ground	II	—
24	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	II	—

K111 Fuel Pump Power Control Module (L8T&N2M) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
25	0.5	BK / BN	6284	Fuel Tank Pressure Sensor Low Reference	I	—
26	0.5	BU / WH	7446	Fuel Pressure Sensor Signal	I	—
27	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	I	—
28	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	I	—
29	—	—	—	Not Occupied	—	—
30	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	I	—

K111 Fuel Pump Power Control Module (L8T&N2N)

FIGURESIO=6217590 Owner=Owner, Schematics
LMD=26-Jan-2023



4162046

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33222138
Service Connector: 19333026
Description: 46-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13575368	J-35616-35 (VT)	J-38125-36
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	84634921	J-35616-42 (RD)	J-38125-212

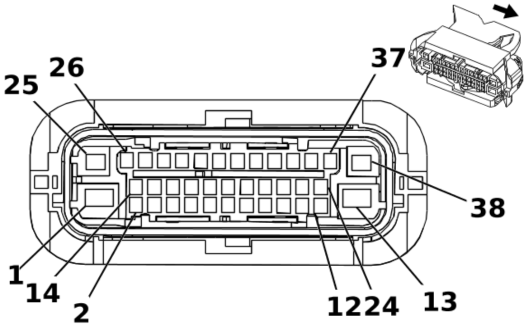
K111 Fuel Pump Power Control Module (L8T&N2N)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	WH / BN	4138	Fuel Pump Supply Voltage Phase 3	III	—
2	2.5	GY	120	Fuel Pump Control	I	—
3	0.5	VT / WH	639	Run/Crank Ignition 1 Voltage	I	—
4 - 5	—	—	—	Not Occupied	—	—
6	0.5	BU / GN	11437	Secondary Fuel Pump Disable Signal	II	—
7	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	II	—
8	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	II	—
9	—	—	—	Not Occupied	—	—
10	0.5	VT / GN	4320	Powertrain Sensor Bus Enable	II	—
11	0.5	GN / GY	465	Fuel Pump Primary Relay Control	II	—
12	1	BK / GN	1580	Fuel Pump Low Reference	I	—
13	1	BU / GN	2120	Secondary Fuel Pump Control	I	—
14	2.5	BK / WH	1951	Signal Ground	III	—
15	0.5	WH	7444	Fuel Pump Assembly Shield Ground	II	—
16 - 18	—	—	—	Not Occupied	—	—
19	0.5	BN / RD	7445	Fuel Line Pressure Sensor 5V Reference	II	—
20	0.5	BU / WH	7446	Fuel Pressure Sensor Signal	II	—

K111 Fuel Pump Power Control Module (L8T&N2N) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
21	0.5	BK / GN	6281	Fuel Level Sensor Low Reference	II	—
22	0.5	BK / BU	6282	Fuel Level Sensor 2 Low Reference	II	—
23	0.5	BK / BN	6284	Fuel Tank Pressure Sensor Low Reference	II	—
24	0.5	BK / GN	54	Evaporative Leak Check Tank Vapor Pressure Sensor Low Reference	II	—
25	0.5	GN / RD	69	Evaporative Leak Check Tank Vapor Pressure Sensor Voltage Reference	II	—
26 - 29	—	—	—	Not Occupied	—	—
30	2.5	YE / GY	4137	Fuel Pump Supply Voltage Phase 2	III	—
31 - 34	—	—	—	Not Occupied	—	—
35	0.5	BK / YE	7447	Fuel Pressure Sensor Low Reference	II	—
36	—	—	—	Not Occupied	—	—
37	0.5	BU / GN	1936	Primary Fuel Level Sensor Signal	II	—
38	0.5	BU / WH	1937	Secondary Fuel Level Sensor Signal	II	—
39	0.5	YE / RD	2709	Fuel Tank Pressure Sensor 5V Reference	II	—
40	0.5	BU / GN	890	Fuel Tank Pressure Sensor Signal	II	—
41	0.5	YE / BU	316	Evaporative Leak Check Tank Vapor Pressure Signal	II	—
42	—	—	—	Not Occupied	—	—
43	0.5 0.5	WH WH / GN	1310 332	EVAP Vent Solenoid Valve Control Evaporative Leak Check Switching Valve Control	II II	L8T+ N2N N2L
44	0.5	VT / WH	338	Evaporative Leak Check Pump Motor Control	II	—
45	—	—	—	Not Occupied	—	—
46	2.5	RD / VT	1940	Battery Positive Voltage	III	—

K115 Reductant Control Module (L5P) FIGURESIO=6258007 Owner=Owner, Schematics LMD=26-Jan-2023



3240110

Connector Part Information

Harness Type: Emission Reduction Fluid Tank Reservoir Wire Harness
OEM Connector: 13582126
Service Connector: Service by Harness - See Part Catalog
Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed(BK with BK Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-40 (BU)	No Tool Required
III	Not required	J-35616-4A (PU)	No Tool Required

K115 Reductant Control Module (L5P)

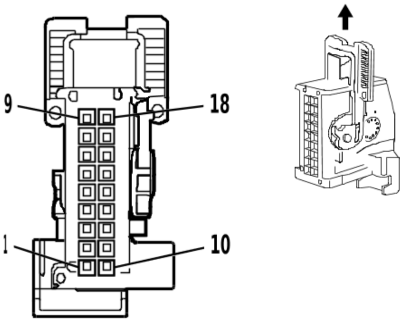
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	3.0	BK	2040	Battery Positive Voltage	II	—
2	1.0	BN	3676	Diesel Exhaust Fluid Heating Tank 2 Heater Control	I	—
3	—	—	—	Not Occupied	—	—
4	1.0	YE	3677	Diesel Exhaust Fluid Reservoir Heater Control	I	—
5	—	—	—	Not Occupied	—	—
6	0.5	BK	3244	Diesel Exhaust Fluid Tank Temperature Sensor Signal	I	—
7	0.5	BK	7290	Diesel Exhaust Fluid Sensor Voltage Reference 1	I	—
8	0.5	BN	7284	Diesel Exhaust Fluid Liquid Quality Temperature Signal	I	—
9	0.5	BK	8434	Diesel Exhaust Fluid Sensor Low Reference	I	—
10	—	—	—	Not Occupied	—	—
11	1.0	YE	3876	Diesel Exhaust Fluid Smart Pump Supply Voltage Phase 3	I	—
12	—	—	—	Not Occupied	—	—
13	3.0	WH	1650	Ground	II	—
14	1.0	BN	2936	Diesel Exhaust Fluid Heating Tank 2 Heater Control Low	I	—
15	—	—	—	Not Occupied	—	—

K115 Reductant Control Module (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
16	1.0	BU	4318	Diesel Exhaust Fluid Tank Heater Low Control	I	—
17	—	—	—	Not Occupied	—	—
18	0.5	BN	3245	Diesel Exhaust Fluid Tank Temperature Sensor Low Reference	I	—
19	0.5	BN	3106	Diesel Exhaust Fluid Pressure Sensor 5 Volt Reference	I	—
20	0.5	BU	3108	Diesel Exhaust Fluid Pressure Sensor Signal	I	—
21	0.5	BU	3107	Diesel Exhaust Fluid Pressure Sensor Low Reference	I	—
22 - 23	—	—	—	Not Occupied	—	—
24	1.0	BN	3875	Diesel Exhaust Fluid Smart Pump Supply Voltage Phase 2	I	—
25	2.0	BK	1650	Ground	III	—
26	1.0	WH	3199	Diesel Exhaust Fluid Pressure Line Heater Control	I	—
27	—	—	—	Not Occupied	—	—
28	1.0	BN	4319	Diesel Exhaust Fluid Line Heater Low Control	I	—
29	—	—	—	Not Occupied	—	—
30	0.5	BN	639	Run/Crank Ignition 1 Voltage	I	—
31	0.5	BU	4977	AUTOSAR CAN Bus [+] 3 Serial Data	I	—
32	0.5	BU	4977	AUTOSAR CAN Bus [+] 3 Serial Data	I	—
33	0.5	BN	4976	AUTOSAR CAN Bus [-] 3 Serial Data	I	—
34	0.5	BN	4976	AUTOSAR CAN Bus [-] 3 Serial Data	I	—
35	—	—	—	Not Occupied	—	—
36	1.0	BU	2937	Diesel Exhaust Fluid Pump Motor Stator Low Reference	I	—
37	1.0	WH	3103	Diesel Exhaust Fluid Smart Pump Control	I	—
38	2.0	RD	3440	Battery Positive Voltage	III	—

K157 Video Processing Module X1 (UV2)

FIGURESIO=6217591 Owner=Owner, Schematics LMD=26-Jan-2023



1567082

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 10820547
Service Connector: 84976200
Description: 18-Way F Micro-Quadlock Series(BK)

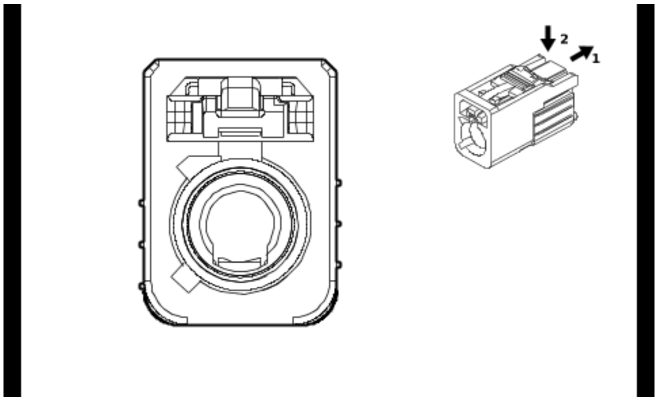
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300632	J-35616-64B (L-BU)	J-38125-215A

K157 Video Processing Module X1 (UV2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.75	BK / WH	1451	Signal Ground	I	—
4 - 9	—	—	—	Not Occupied	—	—
10	0.5	RD / VT	1640	Battery Positive Voltage	I	—
11 - 12	—	—	—	Not Occupied	—	—
13	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
14	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
15	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
16	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
17 - 18	—	—	—	Not Occupied	—	—

K157 Video Processing Module X3 (UV2) FIGURESIO=6217592 Owner=Owner, Schematics LMD=26-Jan-2023



5630785

Connector Part Information

Harness Type: Body Wiring Harness COAX
OEM Connector: 33340314
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BN)

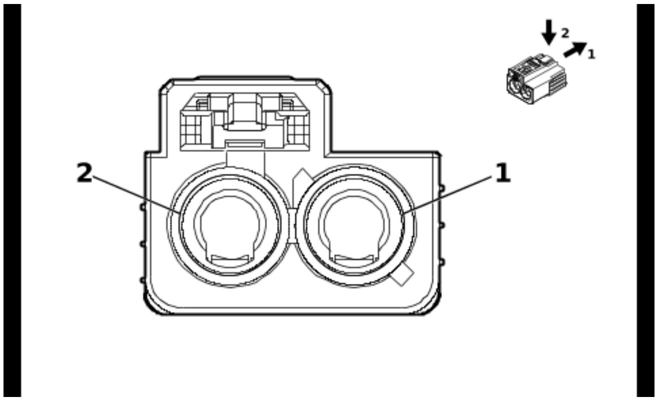
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K157 Video Processing Module X3 (UV2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Video Processing Module Coaxial Video Signal	I	—

K157 Video Processing Module X4 (UV2) FIGURESIO=6217593 Owner=Owner, Schematics LMD=26-Jan-2023



5810836

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33340386
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 2-Way F Coax Type(BG)

Terminal Part Information

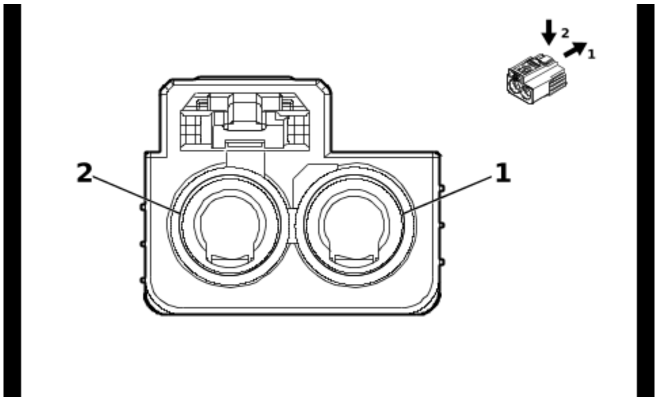
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K157 Video Processing Module X4 (UV2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	2548	Cargo Bed Rear Vision Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	I	—
2	—	—	2548	Cargo Bed Rear Vision Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	I	—

K157 Video Processing Module X5 (UV2)

FIGURESIO=6217594 Owner=Owner, Schematics LMD=26-Jan-2023



5810827

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33340382
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 2-Way F Coax Type(GN)

Terminal Part Information

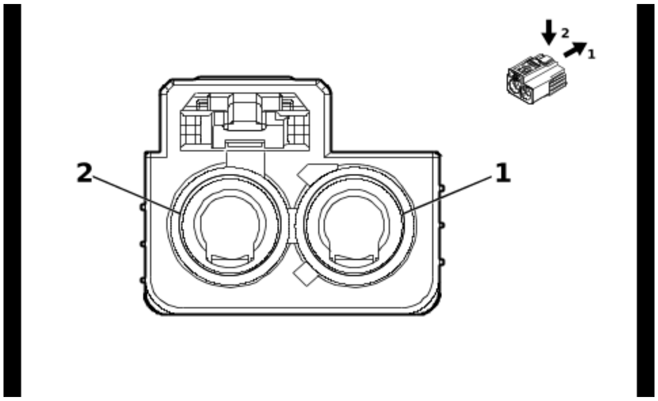
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K157 Video Processing Module X5 (UV2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	7886	Trailer 2 Rear Vision Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	I	—
2	—	—	2421	Trailer Rear Vision Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	I	—

K157 Video Processing Module X6 (UV2)

FIGURESIO=6217595 Owner=Owner, Schematics LMD=26-Jan-2023



5810832

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33340383
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 2-Way F Coax Type(BN)

Terminal Part Information

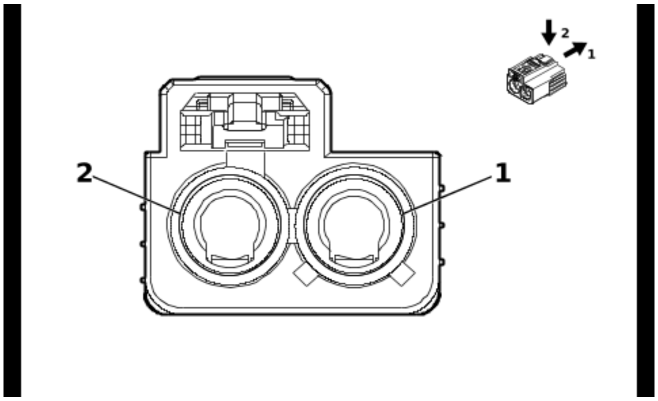
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K157 Video Processing Module X6 (UV2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	4724	Right Sideview Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	I	—
2	—	—	4725	Left Sideview Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	I	—

K157 Video Processing Module X7 (UV2)

FIGURESIO=6217596 Owner=Owner, Schematics LMD=26-Jan-2023



5810835

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33340387
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 2-Way F Coax Type(CU)

Terminal Part Information

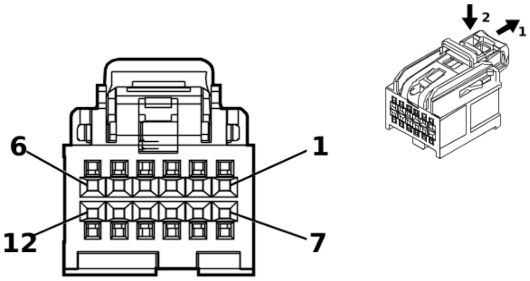
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

K157 Video Processing Module X7 (UV2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	4722	Frontview Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	I	—
2	—	—	4721	Rearview Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	I	—

K182 Parking Assist Control Module X1

FIGURESIO=6217598 Owner=Owner, Schematics LMD=26-Jan-2023



4975223

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35016616
Service Connector: 13519750
Description: 12-Way F 0.64 OCS Series(BK)

Terminal Part Information

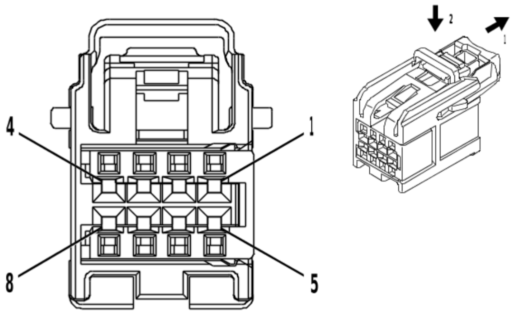
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300660	J-35616-64B (L-BU)	J-38125-215A

K182 Parking Assist Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / WH	4740	Battery Positive Voltage	I	—
2	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
3	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
4 - 5	—	—	—	Not Occupied	—	—
6	0.5	BK / WH	1551	Signal Ground	I	—
7	—	—	—	Not Occupied	—	—
8	0.5	WH	4986	AUTOSAR CAN Bus [-] 1 Serial Data	I	—
9	0.5	BU	4987	AUTOSAR CAN Bus [+] 1 Serial Data	I	—
10 - 12	—	—	—	Not Occupied	—	—

K182 Parking Assist Control Module X2

FIGURESIO=6217599 Owner=Owner, Schematics LMD=26-Jan-2023



4232228

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 15526973
Service Connector: 19353873
Description: 8-Way F 0.64 OCS Series(GY)

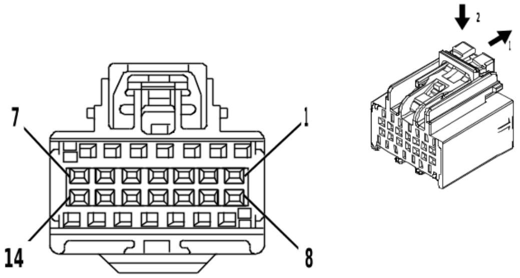
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K182 Parking Assist Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.5	YE / WH	2377	Right Rear Middle Parking Assist Sensor Signal	I	—
3	0.5	YE	2375	Left Rear Outer Parking Assist Sensor Signal	I	—
4	0.5	BN / WH	2374	Object Sensor Voltage Reference	I	—
5	0.5	YE / VT	2378	Right Rear Outer Parking Assist Sensor Signal	I	—
6	0.5	YE / BU	2376	Left Rear Middle Parking Assist Sensor Signal	I	—
7	—	—	—	Not Occupied	—	—
8	0.5	BK / GY	2379	Object Sensor Low Reference	I	—

K182 Parking Assist Control Module X3 FIGURESIO=6217600 Owner=Owner, Schematics LMD=26-Jan-2023



4547098

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35014564
Service Connector: 19354933
Description: 14-Way F 0.64 Kaizen Series(BU)

Terminal Part Information

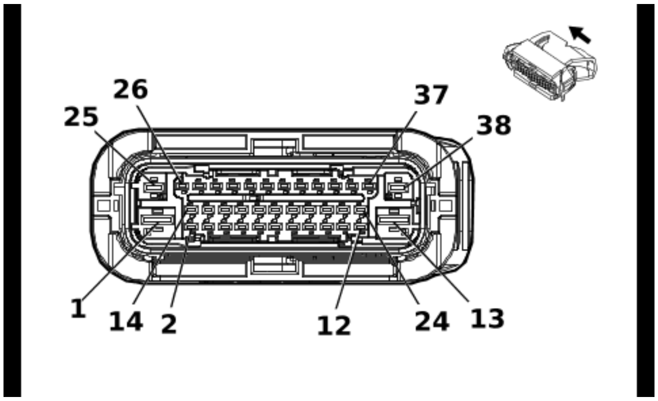
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19303553	J-35616-64B (L-BU)	J-38125-215A

K182 Parking Assist Control Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 4	—	—	—	Not Occupied	—	—
5	0.5	YE / GY	5216	Left Front Middle Parking Assist Sensor	I	—
6	0.5	WH / GY	5217	Right Front Outer Parking Assist Sensor	I	—
7	0.5	BN	6581	Front Parking Assist Display Control	I	—
8 - 10	—	—	—	Not Occupied	—	—
11	0.5	VT / WH	5215	Left Front Outer Parking Assist Sensor	I	—
12	0.5	VT / GY	5218	Right Front Middle Parking Assist Sensor	I	—
13	—	—	—	Not Occupied	—	—
14	0.5	BK / BU	5214	Front Parking Assist Sensor Low Reference	I	—

K194 Rear Gate Module (QK1)

FIGURESIO=6217601 Owner=Owner, Schematics LMD=26-Jan-2023



3240112

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 35503407
Service Connector: Service by Harness - See Part Catalog
Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed(BK with BU Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-35 (VT)	No Tool Required
III	Not required	J-35616-40 (BU)	No Tool Required

K194 Rear Gate Module (QK1)

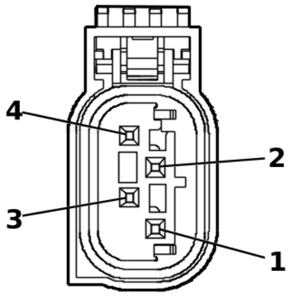
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1850	Ground	III	—
2	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
3	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
4	—	—	—	Not Occupied	—	—
5	0.5	YE / BK	8085	Rear Closure Latch Primary Status	I	—
6	0.5	BN / GY	10281	Rear Closure Latch Secondary Status Signal	I	—
7	0.5	WH / GN	8084	Rear Closure Latch Neutral Status	I	—
8	0.5	GY / VT	4678	Rear Closure Latch Unlatch Status	I	—
9 - 12	—	—	—	Not Occupied	—	—
13	2.5	RD / VT	4442	Primary Fused Battery Positive Voltage	III	—
14	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
15	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
16	0.5	BN	7736	Rear Closure Latch 2 Unlatch Status Signal	I	—
17	—	—	—	Not Occupied	—	—
18	0.5	BN / RD	4683	Rear Closure Position Sensor Voltage Reference	I	—
19	0.5	BK / GN	4687	Rear Closure Position Sensor Low Reference	I	—
20	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—
21	0.5	BN / YE	4686	Rear Closure Position Sensor Signal 2	I	—

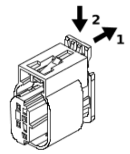
K194 Rear Gate Module (QK1) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
22	0.5	BU / WH	4685	Rear Closure Position Sensor Signal 1	I	—
23	0.5	GN / BU	10283	Rear Closure Latch 2 Primary Status Signal	I	—
24	0.5	VT / WH	10284	Rear Closure Latch 2 Secondary Status Signal	I	—
25	1	BN / WH	4690	Rear Closure Open/Close Motor Close Control	II	—
26	0.5	BU / BN	10282	Rear Closure Latch 2 Neutral Status Signal	I	—
27	0.5	GY / BK	1575	Rear Closure Sensor Low Reference 2	I	—
28	0.5	BK / VT	4656	Rear Closure Object Sensor Low Reference	I	—
29	—	—	—	Not Occupied	—	—
30	1	BU	1509	Rear Closure Cinch Latch Motor 2 Release Control	I	—
31	1	GN	1499	Rear Closure Cinch Latch Motor 2 Cinch Control	I	—
32	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
33	1	BU / GY	4682	Rear Closure Cinch Latch Motor Release Control	I	—
34	1	BN	4681	Rear Closure Cinch Latch Motor Cinch Control	I	—
35	0.5	GN	1577	Rear Closure Clutch Control	I	—
36	0.5	BU / BK	1590	Rear Closure Clutch Low Return	I	—
37	—	—	—	Not Occupied	—	—
38	1	WH	4689	Rear Closure Open/Close Motor Open Control	II	—

K214 Trailer Tire Pressure Indicator Module

FIGURESIO=6217602 Owner=Owner, Schematics LMD=26-Jan-2023





5215490

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13655424
Service Connector: 86825461
Description: 4-Way F 0.64 MTS Series, Sealed(BK)

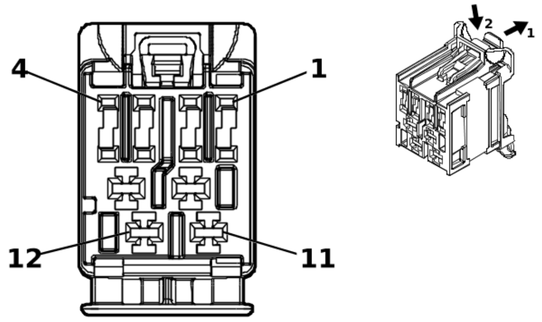
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K214 Trailer Tire Pressure Indicator Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / GN	6940	Battery Positive Voltage	I	—
2	0.5	BK	1850	Ground	I	—
3	0.5	GN / YE	2862	Body Control Module LIN Bus 16	I	—
4	—	—	—	Not Occupied	—	—

K219 Lighting Control Module X1 FIGURESIO=6217603 Owner=Owner, Schematics LMD=26-Jan-2023



5203784

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33382115
Service Connector: 13509990
Description: 12-Way F 1.2, 2.8 stAK50h Series(L-PU)

Terminal Part Information

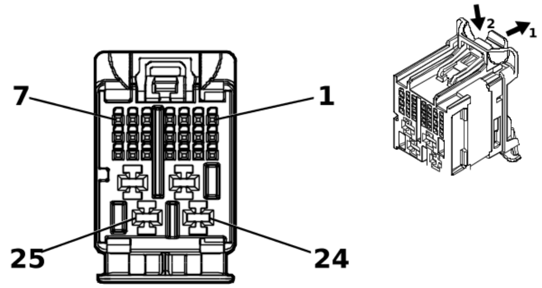
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	84729890	J-35616-12 (L-BU)	J-38125-215A
II	87814662	J-35616-4A (PU)	J-38125-557

K219 Lighting Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / YE	1254	Left Front Park Lamp Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	GN / WH	24	Backup Lamp Control	I	—
4	—	—	—	Not Occupied	—	—
5	0.5	BU / WH	1314	Left Front Turn Signal Lamp Control	I	—
6	0.5	BN / GY	5061	Left Front Fog Lamp Control	I	—
7	0.5	GN / YE	6846	Rear License Plate Lamp Control	I	—
8	0.35	GY / BU	7538	Left Front DRL Control	I	—
9	0.5	RD / VT	7140	Battery Positive Voltage	II	—
10	0.5	YE	712	Left Headlamp Low Beam Control	II	—
11	—	—	—	Not Occupied	—	—
12	0.5	WH	711	Left Headlamp High Beam Control	II	—

K219 Lighting Control Module X2

FIGURESIO=6217604 Owner=Owner, Schematics LMD=26-Jan-2023



5203807

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35392286
Service Connector: 13534966
Description: 25-Way F 0.5 MQS, 2.8 MCP Series(GY with GY Inner Connector)

Terminal Part Information

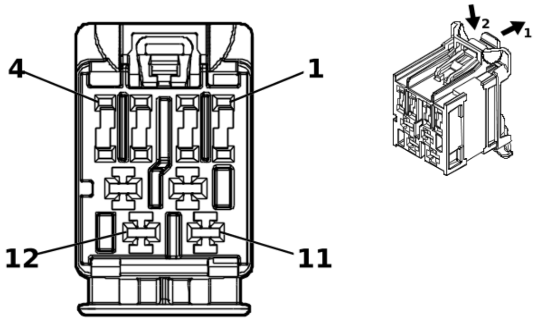
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	87814662	J-35616-4A (PU)	J-38125-557

K219 Lighting Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	WH / YE	7541	Right Rear Stop Lamp Control	I	—
3	0.35	BN / GY	2268	Windshield Washer Relay Control	I	—
4	0.35	BU / BN	38	Backup Lamp Relay Control	I	—
5 - 9	—	—	—	Not Occupied	—	—
10	0.35	BN / GN	196	Windshield Wiper Motor Park Switch Signal	I	—
11	0.35	VT / BK	6568	Front Turn Signal Lamp Feedback Signal	I	—
12	0.35	GY	91	Windshield Wiper Motor Relay Coil Control	I	—
13	0.35	BU / YE	68	Low Coolant Level Indicator Control	I	—
14	0.35	VT	185	Low Washer Fluid Indicator Control	I	—
15 - 18	—	—	—	Not Occupied	—	—
19	0.35	WH / BN	7055	Auxiliary Park Lamp Relay Control	I	—
20	0.35	WH / YE	7545	Right Front Turn Signal Lamp Feedback Signal	I	—
21	0.35	WH / VT	860	Windshield Wiper Switch High Signal	I	—
22	0.5	RD / GN	7740	Battery Positive Voltage	II	—
23	0.5	RD / BU	840	Battery Positive Voltage	II	—
24 - 25	—	—	—	Not Occupied	—	—

K219 Lighting Control Module X3

FIGURESIO=6217605 Owner=Owner, Schematics LMD=26-Jan-2023



5203797

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33382116
Service Connector: 13509989
Description: 12-Way F 1.2, 2.8 stAK50h Series(GN)

Terminal Part Information

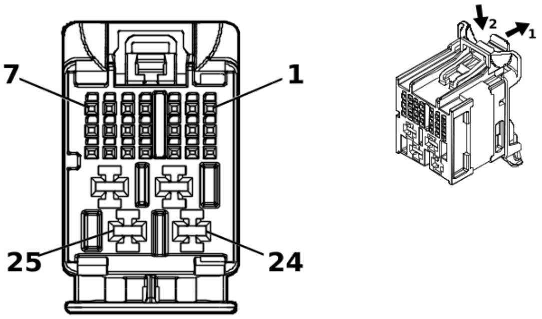
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	84729890	J-35616-12 (L-BU)	J-38125-215A
II	87814662	J-35616-4A (PU)	J-38125-557

K219 Lighting Control Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / BN	7539	Right Front DRL Control	I	—
2	0.75	GY / YE	7542	Left Rear Stop Lamp Control	I	—
3	—	—	—	Not Occupied	—	—
4	0.5	BU / GN	1253	Right Front Park Lamp Control	I	—
5	—	—	—	Not Occupied	—	—
6	0.75	BU / VT	1335	Right Rear Turn Signal Lamp Control 2	I	—
7	0.35	BU / YE	7761	Backup Illumination Lamp Control	I	—
8	—	—	—	Not Occupied	—	—
9	1.5	RD / BU	540	Battery Positive Voltage	II	—
10	1.5	RD / BN	1440	Battery Positive Voltage	II	—
11	0.5	WH	311	Right Headlamp High Beam Control	II	—
12	0.5	YE	312	Right Headlamp Low Beam Control	II	—

K219 Lighting Control Module X4

FIGURESIO=6217606 Owner=Owner, Schematics LMD=26-Jan-2023



5203416

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35392283
Service Connector: 13534969
Description: 25-Way F 0.5 MQS, 2.8 MCP Series(PU with GY Inner Connector)

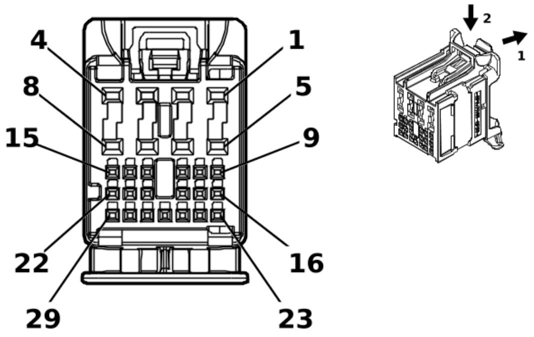
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	87814662	J-35616-4A (PU)	J-38125-557

K219 Lighting Control Module X4

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
4	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—
5	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
6	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—
7	0.35	WH / BU	6311	Cruise/ETC/TCC Brake Signal	I	—
8 - 9	—	—	—	Not Occupied	—	—
10	0.35	WH	4978	AUTOSAR CAN Bus [-] 2 Serial Data	I	—
11	0.35	BU / YE	4979	AUTOSAR CAN Bus [+] 2 Serial Data	I	—
12 - 21	—	—	—	Not Occupied	—	—
22	1	RD / BN	1140	Battery Positive Voltage	II	—
23	1.5	BK / WH	1551	Signal Ground	II	—
24	0.5	RD / GN	1540	Battery Positive Voltage	II	—
25	1	BK / WH	1451	Signal Ground	II	—

K219 Lighting Control Module X5 FIGURESIO=6217607 Owner=Owner, Schematics LMD=26-Jan-2023



5203373

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35392292
Service Connector: 13534975
Description: 29-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(BU with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19370262	EL-35616-58 (BK)	EL-38125-58
II	84729890	J-35616-12 (L-BU)	J-38125-215A

K219 Lighting Control Module X5

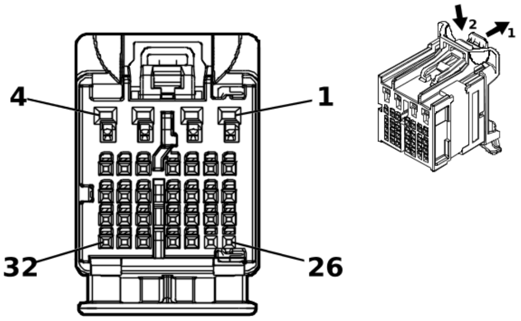
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / GN	5966	Approach Lamp Control	II	—
2	0.75	BN / GY	6995	Right Rear Park Lamp Control	II	—
3	0.5	GY / BU	7762	Cargo Lamp Control	II	—
4	0.5	WH / VT	1430	Exterior Courtesy Lamp Control	II	—
5	0.5	YE / GN	2024	Animation Lighting Control	II	—
6	0.75	BN / BU	6993	Left Rear Park Lamp Control	II	—
7	0.5	GN / VT	1315	Right Front Turn Signal Lamp Control	II	—
8	0.75	BU / WH	1334	Left Rear Turn Signal Lamp Control 2	II	—
9	0.35	GN / GY	2115	Right Turn Signal Lamp Control 2	I	—
10	0.35	WH / GY	2114	Left Turn Signal Lamp Control 2	I	—
11	0.35	GY	1715	Windshield Wiper Switch High Signal	I	—
13	0.35	GN / BN	319	Right Rear Trailer Stop/Turn Lamp Control	I	—
14	—	—	—	Not Occupied	—	—
15	0.35	WH / GY	2935	Task Lamp Switch Signal	I	—
16	0.35	YE / WH	2934	Task Lamp Control Right	I	—
17	—	—	—	Not Occupied	—	—
18	0.35	VT / WH	239	Run/Crank Ignition 1 Voltage	I	—
20 - 22	—	—	—	Not Occupied	—	—
23	0.35	WH / VT	6567	Rear Turn Signal Lamp Feedback Signal	I	—

K219 Lighting Control Module X5 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
24	0.35	WH / BK	7544	Right Rear Turn Signal Lamp Feedback Signal	I	—
25	0.35	BN / YE	820	Center High Mounted Stop Lamp Supply Voltage	I	—
26 - 27	—	—	—	Not Occupied	—	—
28	0.35	YE / GY	2933	Task Lamp Control Left	I	—
29	0.35	YE / BU	318	Left Rear Trailer Stop/Turn Lamp Control	I	—

K221LL Headlamp LED Driver Module - Left Lower (T4L)

FIGURESIO=6217608 Owner=Owner, Schematics
LMD=26-Jan-2023



5203925

Connector Part Information

Harness Type: Front Headlamp - Left
OEM Connector: 160028-0012
Service Connector: Service by Harness - See Part Catalog
Description: 32-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(BU with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

K221LL Headlamp LED Driver Module - Left Lower (T4L)

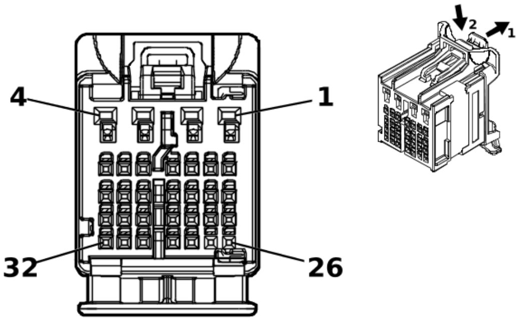
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	150	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	BK	640	Battery Positive Voltage	I	—
4	—	—	—	Not Occupied	—	—
5	0.35	BK	-	Lamp/Fan	I	—
6	0.35	BK	-	Lamp/Fan	I	—
7	0.35	BK	-	Lamp/Fan	I	—
8	0.35	BK	-	Lamp/Fan	I	—
9	0.35	BK	-	Lamp/Fan	I	—
10	—	—	—	Not Occupied	—	—
11	0.35	BK	-	Lamp/Fan	I	—
12	0.35	BK	-	Lamp/Fan	I	—
13 - 16	—	—	—	Not Occupied	—	—
17	0.35	BK	2024	Animation Lighting Control	I	—
18	0.35	BK	7538	Left Front DRL Control	I	—
19	0.35	BK	-	Lamp/Fan	I	—
20 - 22	—	—	—	Not Occupied	—	—
23	0.35	BK	6568	Front Turn Signal Lamp Feedback Signal	I	—
24	—	—	—	Not Occupied	—	—
25	0.35	BK	1314	Left Front Turn Signal Lamp Control	I	—

K221LL Headlamp LED Driver Module - Left Lower (T4L) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
26	0.35	BK	-	Lamp/Fan	I	—
27	0.35	BK	150	Ground	I	—
28 - 30	—	—	—	Not Occupied	—	—
31	0.35	BK	1314	Left Front Turn Signal Lamp Control	I	—
32	—	—	—	Not Occupied	—	—

K221LU Headlamp LED Driver Module - Left Upper (T4L) FIGURESIO=6217609 Owner=Owner, Schematics

LMD=26-Jan-2023



5202294

Connector Part Information

Harness Type: Front Headlamp - Left
OEM Connector: 160028-0014
Service Connector: Service by Harness - See Part Catalog
Description: 32-Way F 0.5 MQS, 1.2 OCS Series(PU with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

K221LU Headlamp LED Driver Module - Left Upper (T4L)

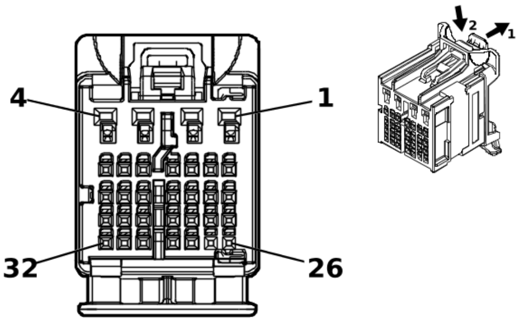
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	BK	150	Ground	I	—
3	—	—	—	Not Occupied	—	—
4	0.35	BK	740	Battery Positive Voltage	I	—
5 - 7	—	—	—	Not Occupied	—	—
8	0.35	BK	150	Ground	I	—
9 - 11	—	—	—	Not Occupied	—	—
12	0.35	BK	-	Lamp/Fan	I	—
13	0.35	BK	-	Lamp/Fan	I	—
14	—	—	—	Not Occupied	—	—
15	0.35	BK	-	Lamp/Fan	I	—
16	—	—	—	Not Occupied	—	—
17	0.35	BK	2024	Animation Lighting Control	I	—
18 - 20	—	—	—	Not Occupied	—	—
21	0.35	BK	-	Lamp/Fan	I	—
22	0.35	BK	-	Lamp/Fan	I	—
23 - 25	—	—	—	Not Occupied	—	—
26	0.35	BK	-	Lamp/Fan	I	—
27	0.35	BK	-	Lamp/Fan	I	—
28	0.35	BK	-	Lamp/Fan	I	—

K221LU Headlamp LED Driver Module - Left Upper (T4L) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
29	—	—	—	Not Occupied	—	—
30	0.35	BK	-	Lamp/Fan	I	—
31	0.35	BK	711	Left Headlamp High Beam Control	I	—
32	0.35	BK	712	Left Headlamp Low Beam Control	I	—

K221RL Headlamp LED Driver Module - Right Lower (T4L)

FIGURESIO=6217610 Owner=Owner, Schematics
LMD=26-Jan-2023



5203925

Connector Part Information

Harness Type: Front Headlamp - Right
OEM Connector: 160028-0012
Service Connector: Service by Harness - See Part Catalog
Description: 32-Way F 0.5 NANO, 1.2 MCON, stAK50h Series(BU with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

K221RL Headlamp LED Driver Module - Right Lower (T4L)

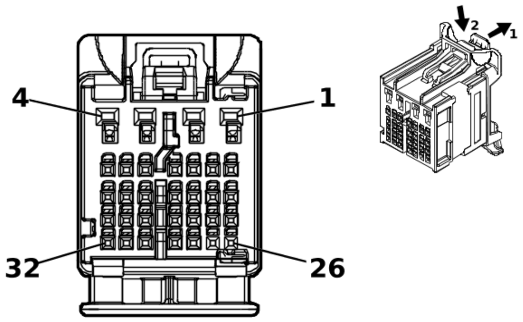
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	650	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	BK	740	Battery Positive Voltage	I	—
4	—	—	—	Not Occupied	—	—
5	0.35	BK	-	Lamp/Fan	I	—
6	0.35	BK	-	Lamp/Fan	I	—
7	0.35	BK	-	Lamp/Fan	I	—
8	0.35	BK	-	Lamp/Fan	I	—
9	0.35	BK	-	Lamp/Fan	I	—
10	—	—	—	Not Occupied	—	—
11	0.35	BK	-	Lamp/Fan	I	—
12	0.35	BK	-	Lamp/Fan	I	—
13 - 16	—	—	—	Not Occupied	—	—
17	0.35	BK	2024	Animation Lighting Control	I	—
18	0.35	BK	7539	Right Front DRL Control	I	—
19	0.35	BK	-	Lamp/Fan	I	—
20 - 22	—	—	—	Not Occupied	—	—
23	0.35	BK	7545	Right Front Turn Signal Lamp Feedback Signal	I	—
24	—	—	—	Not Occupied	—	—
25	0.35	BK	1315	Right Front Turn Signal Lamp Control	I	—

K221RL Headlamp LED Driver Module - Right Lower (T4L) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
26	0.35	BK	-	Lamp/Fan	I	—
27	0.35	BK	650	Ground	I	—
28 - 30	—	—	—	Not Occupied	—	—
31	0.35	BK	1315	Right Front Turn Signal Lamp Control	I	—
32	—	—	—	Not Occupied	—	—

K221RU Headlamp LED Driver Module - Right Upper (T4L)

FIGURESIO=6217611 Owner=Owner, Schematics
LMD=26-Jan-2023



5202294

Connector Part Information

Harness Type: Front Headlamp - Right
OEM Connector: 160028-0014
Service Connector: Service by Harness - See Part Catalog
Description: 32-Way F 0.5 MQS, 1.2 OCS Series(PU with GY Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

K221RU Headlamp LED Driver Module - Right Upper (T4L)

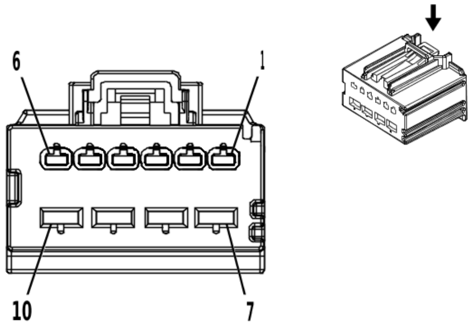
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	BK	650	Ground	I	—
3	—	—	—	Not Occupied	—	—
4	0.35	BK	740	Battery Positive Voltage	I	—
5 - 7	—	—	—	Not Occupied	—	—
8	0.35	BK	650	Ground	I	—
9 - 11	—	—	—	Not Occupied	—	—
12	0.35	BK	-	Lamp/Fan	I	—
13	0.35	BK	-	Lamp/Fan	I	—
14	—	—	—	Not Occupied	—	—
15	0.35	BK	-	Lamp/Fan	I	—
16	—	—	—	Not Occupied	—	—
17	0.35	BK	2024	Animation Lighting Control	I	—
18 - 20	—	—	—	Not Occupied	—	—
21	0.35	BK	-	Lamp/Fan	I	—
22	0.35	BK	-	Lamp/Fan	I	—
23 - 25	—	—	—	Not Occupied	—	—
26	0.35	BK	-	Lamp/Fan	I	—
27	0.35	BK	-	Lamp/Fan	I	—
28	0.35	BK	-	Lamp/Fan	I	—

K221RU Headlamp LED Driver Module - Right Upper (T4L) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
29	—	—	—	Not Occupied	—	—
30	0.35	BK	-	Lamp/Fan	I	—
31	0.35	BK	311	Right Headlamp High Beam Control	I	—
32	0.35	BK	312	Right Headlamp Low Beam Control	I	—

K234 Rear Seat Heater Vent Control Module X1 (KA6)

FIGURESIO=6217612 Owner=Owner, Schematics
LMD=26-Jan-2023



3791446

Connector Part Information

Harness Type: Rear Seat Heater Control Wiring Harness
OEM Connector: 31372-1000
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 1.5, 2.8 MX Series(BK)

Terminal Part Information

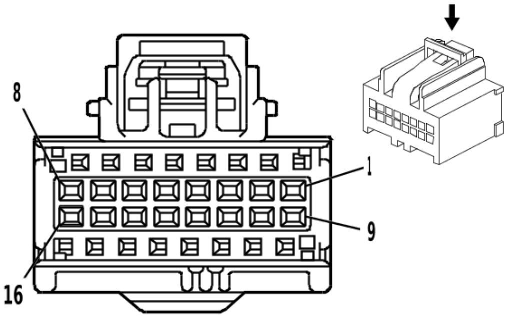
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required

K234 Rear Seat Heater Vent Control Module X1 (KA6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.75	GN / BN	2296	Right Rear Seat Cushion Heating Element Control	I	—
3	0.75	GN / BK	2297	Right Rear Seat Cushion Heating Element Low Reference	I	—
4	0.75	BN / BK	2295	Left Rear Seat Cushion Heating Element Low Reference	I	—
5	—	—	—	Not Occupied	—	—
6	0.75	GY	2294	Left Rear Seat Cushion Heating Element Control	I	—
7	0.75	RD / YE	240	Battery Positive Voltage	II	—
8	1	BK	1150	Ground	II	—
9	—	—	—	Not Occupied	—	—
10	0.75	RD / VT	340	Battery Positive Voltage	II	—

K234 Rear Seat Heater Vent Control Module X2 (KA6)

FIGURESIO=6217613 Owner=Owner, Schematics
LMD=26-Jan-2023



1653409

Connector Part Information

Harness Type: Rear Seat Heater Control Wiring Harness
OEM Connector: 7283-9076-30
Service Connector: Service by Harness - See Part Catalog
Description: 16-Way F 0.64 Kaizen Series(BK)

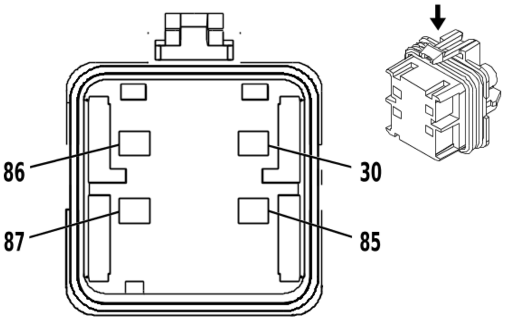
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

K234 Rear Seat Heater Vent Control Module X2 (KA6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU / WH	7048	Left Rear Cushion Thermistor Feedback Signal	I	—
2	0.75	WH / BK	7054	Right Rear Cushion Thermistor Feedback Signal	I	—
3 - 4	—	—	—	Not Occupied	—	—
5	0.75	YE / WH	7053	Right Rear Seat Cushion Temperature Sensor Signal	I	—
6	0.75	WH / BU	7047	Left Rear Seat Cushion Temperature Sensor Signal	I	—
7	0.5	BK	1150	Ground	I	—
8	0.5	GN / BU	6133	Body Control Module LIN Bus 2	I	—
9 - 16	—	—	—	Not Occupied	—	—

KR81A Auxiliary Battery Relay 1 FIGURESIO=6258009 Owner=Owner, Schematics LMD=26-Jan-2023



535912

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 12129716
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 280 Metri-Pack Flexlock Series, Sealed(GY)

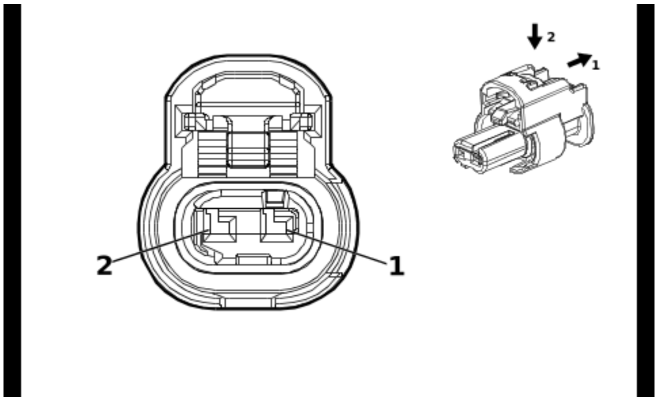
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

KR81A Auxiliary Battery Relay 1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
30	—	RD / YE	4540	Battery Positive Voltage	I	—
85	— —	RD / BU BK	4450 450	Ground Ground	I I	— —
86	—	BN / BU	4893	3rd Row Left Seat Cushion Heating Element Feedback Signal	I	—
87	—	RD / BU	4540	Battery Positive Voltage	I	—

KR81B Auxiliary Battery Relay 2 FIGURESIO=6258011 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

KR81B Auxiliary Battery Relay 2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	—	BK	450	Ground	I	—

KR181 Snow Plow Relay

—

Connector Part Information

Harness Type: Accessory Wiring Harness
OEM Connector: 35028846
Service Connector: Service by Component Assembly - See Part Catalog
Description: Wire Entry Fuse Block

Terminal Part Information

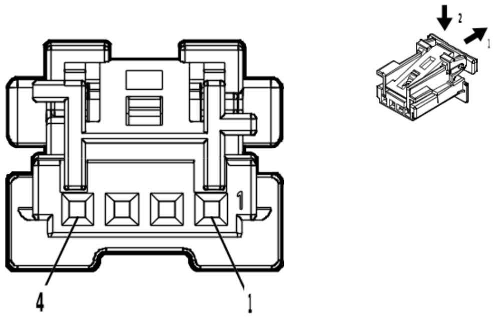
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

KR181 Snow Plow Relay

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A4	0.5	BN	25	Charge Indicator Control	I	—
A6	0.75	GY / VT	9026	Snow Plow Relay Control	I	—
B4	0.75	GY / VT	9026	Snow Plow Relay Control	I	—
B5	0.5	BN	25	Charge Indicator Control	I	—

M4P Programmable Air Inlet Valve Actuator

FIGURESIO=6258013 Owner=Owner, Schematics LMD=26-Jan-2023



4997407

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13511018
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

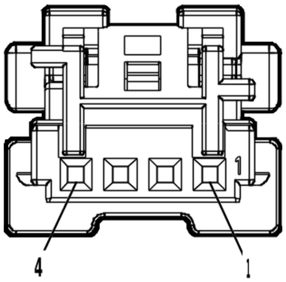
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

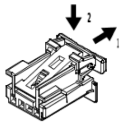
M4P Programmable Air Inlet Valve Actuator

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1050	Ground	I	—
2	—	BU	2852	Body Control Module LIN Bus 6	I	—
3	—	BK	1050	Ground	I	—
4	—	RD	4634	HVAC Remote Enable Signal	I	—

M6PL Programmable Temperature Valve Actuator - Left

FIGURESIO=6258015 Owner=Owner, Schematics
LMD=26-Jan-2023





4997407

Connector Part Information

Harness Type: Heater Wiring Harness
OEM Connector: 2294218-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

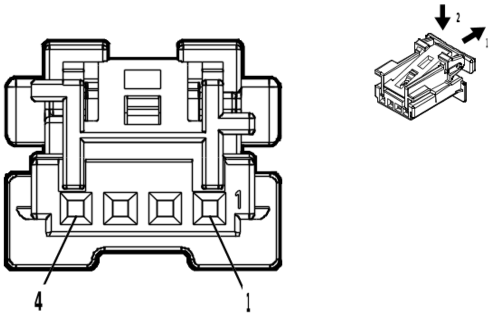
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

M6PL Programmable Temperature Valve Actuator - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	1050	Ground	I	—
2	0.35	BU / VT	2852	Body Control Module LIN Bus 6	I	—
3	0.35	BK	1050	Ground	I	—
4	0.35	WH / YE	4634	HVAC Remote Enable Signal	I	—

M6PR Programmable Temperature Valve Actuator - Right

FIGURESIO=6258018 Owner=Owner, Schematics
LMD=26-Jan-2023



4997407

Connector Part Information

Harness Type: Heater Wiring Harness
OEM Connector: 2294218-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

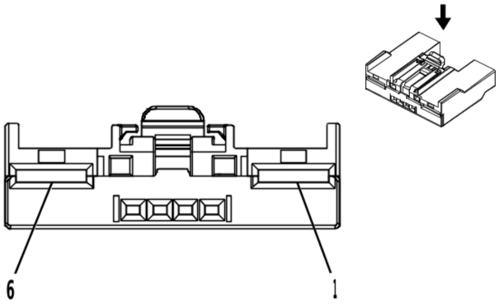
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

M6PR Programmable Temperature Valve Actuator - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	1050	Ground	I	—
2	0.35	BU / VT	2852	Body Control Module LIN Bus 6	I	—
3	—	—	—	Not Occupied	—	—
4	0.35	WH / YE	4634	HVAC Remote Enable Signal	I	—

M8 Blower Motor FIGURESIO=6217615 Owner=Owner, Schematics LMD=26-Jan-2023



2904463

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 13965831
Service Connector: 19356432
Description: 6-Way F 0.64 GET, 6.3 Series(BK)

Terminal Part Information

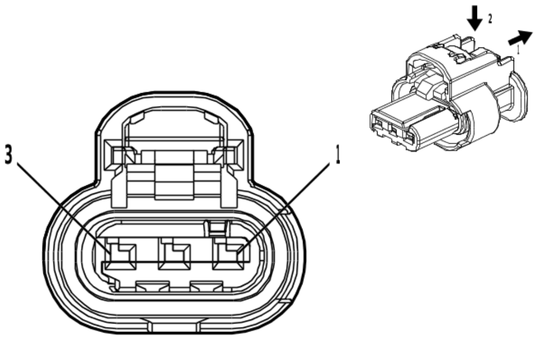
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-64B (L-BU)	No Tool Required

M8 Blower Motor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	4	RD / GY	1740	Battery Positive Voltage	I	—
2	0.35	BU / GY	754	Blower Motor Speed Control	II	—
3	0.35	GN / BU	761	Blower Speed Feedback Signal	II	—
4 - 5	—	—	—	Not Occupied	—	—
6	4	BK	1050	Ground	I	—

M10 Charge Air Cooler Coolant Pump (L5P)

FIGURESIO=6217616 Owner=Owner, Schematics LMD=26-Jan-2023



4581126

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33358800
Service Connector: 86792094
Description: 3-Way F 1.2 MCON-CB Series, Sealed(BK)

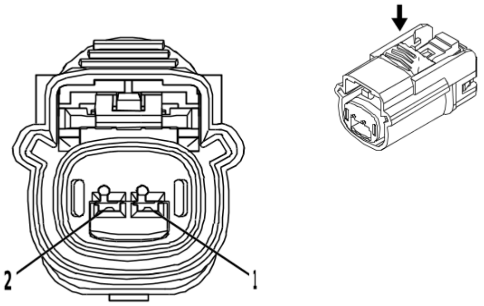
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

M10 Charge Air Cooler Coolant Pump (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	BK	6150	Engine Odd Bank Ground	I	—
2	1	VT / BU	5294	Powertrain Main Relay Fused Supply Voltage 5	I	—
3	0.5	GN / VT	4621	Engine Control Module LIN Bus 1	I	—

M14A Pickup Box Endgate Lock Actuator (QK1) FIGURESIO=6217617 Owner=Owner, Schematics LMD=26-Jan-2023



4332222

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 15514573
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 OCS Series, Sealed(BK)

Terminal Part Information

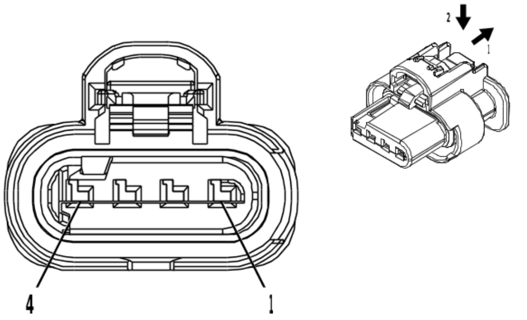
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

M14A Pickup Box Endgate Lock Actuator (QK1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	GN	1299	Major Endgate Motor Control	I	—
2	1	YE / BK	7730	Major Endgate Motor Low Reference	I	—

M26 Front Drive Axle Actuator

FIGURESIO=6217618 Owner=Owner, Schematics LMD=26-Jan-2023



4210809

Connector Part Information

Harness Type: Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness
OEM Connector: 33390897
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

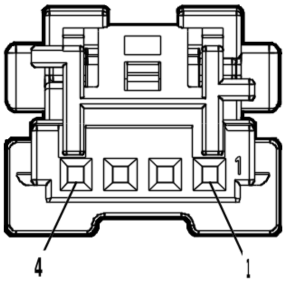
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

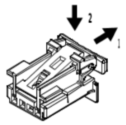
M26 Front Drive Axle Actuator

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN	8016	Secondary Axle Motor Control	I	—
2	0.5	GY / BK	1570	Front Axle Actuator Control	I	—
3	0.5	YE / WH	1695	4WD Locked Range Indicator Control	I	—
4	0.5	BK	450	Ground	I	—

M37P Programmable Mode Valve Actuator

FIGURESIO=6258019 Owner=Owner, Schematics LMD=26-Jan-2023





4997407

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13511018
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

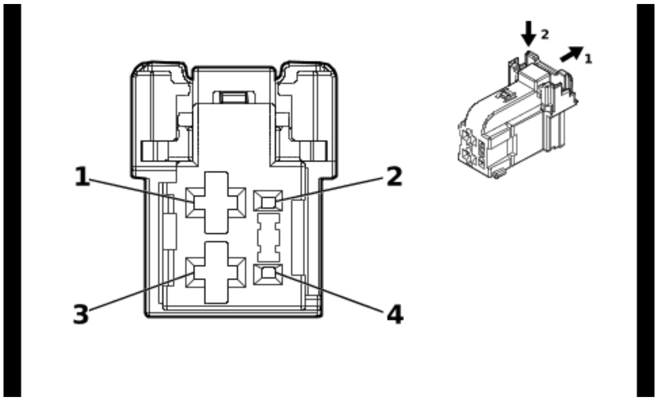
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

M37P Programmable Mode Valve Actuator

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	1050	Ground	I	—
2	—	BU	2852	Body Control Module LIN Bus 6	I	—
3	—	—	—	Not Occupied	—	—
4	—	RD	4634	HVAC Remote Enable Signal	I	—

M50D Front Seat Tilt Adjuster Actuator - Driver (A2X&A45)

FIGURESIO=6217619 Owner=Owner, Schematics
LMD=26-Jan-2023



5410027

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 2316171-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

Terminal Part Information

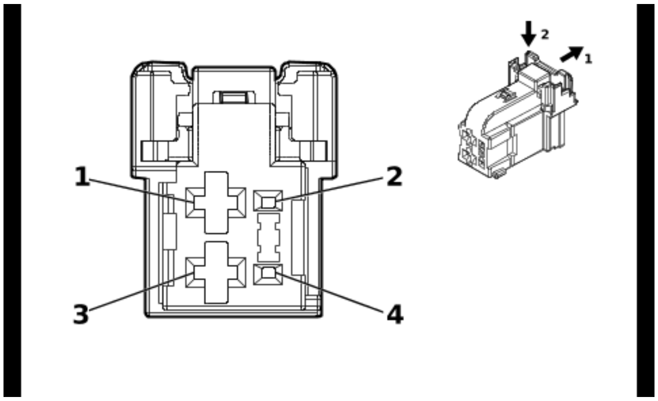
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M50D Front Seat Tilt Adjuster Actuator - Driver (A2X&A45)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	BU / VT	287	Driver Seat Front Vertical Motor Down Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	GN / BN	286	Driver Seat Front Vertical Motor Up Control	I	—
4	—	—	—	Not Occupied	—	—

M50D Front Seat Tilt Adjuster Actuator - Driver (A2X-A45)

FIGURESIO=6217620 Owner=Owner, Schematics
LMD=26-Jan-2023



5410027

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 2316171-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

Terminal Part Information

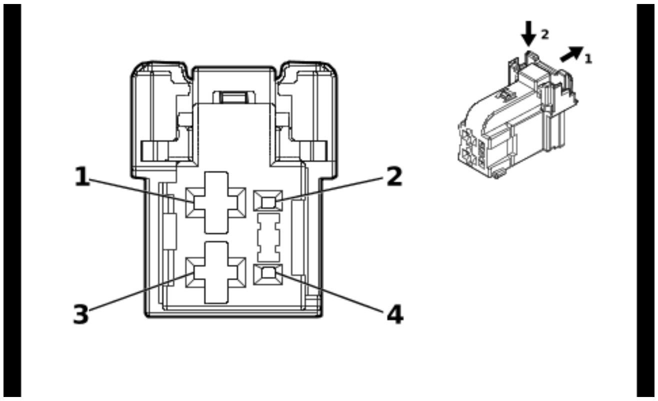
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M50D Front Seat Tilt Adjuster Actuator - Driver (A2X-A45)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	BU / VT	287	Driver Seat Front Vertical Motor Down Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	GN / BN	286	Driver Seat Front Vertical Motor Up Control	I	—
4	—	—	—	Not Occupied	—	—

M50P Front Seat Tilt Adjuster Actuator - Passenger

FIGURESIO=6217621 Owner=Owner, Schematics
LMD=26-Jan-2023



5410027

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 2316171-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

Terminal Part Information

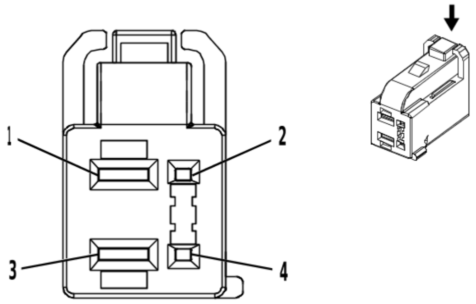
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M50P Front Seat Tilt Adjuster Actuator - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN / VT	297	Passenger Seat Front Vertical Motor Up Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	GN / BU	298	Passenger Seat Front Vertical Motor Down Control	I	—
4	—	—	—	Not Occupied	—	—

M51D Front Seat Adjuster Actuator - Driver

FIGURESIO=6217622 Owner=Owner, Schematics LMD=26-Jan-2023



3683652

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 13583828
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

Terminal Part Information

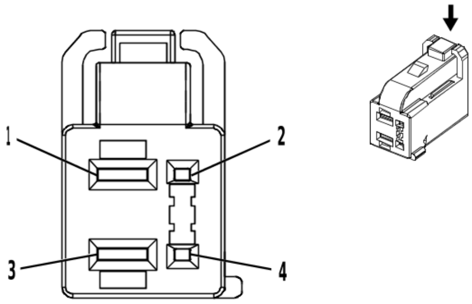
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

M51D Front Seat Adjuster Actuator - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GY / GN	284	Driver Seat Horizontal Motor Rearward Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	YE / BU	285	Driver Seat Horizontal Motor Forward Control	I	—
4	—	—	—	Not Occupied	—	—

M51P Front Seat Adjuster Actuator - Passenger

FIGURESIO=6217623 Owner=Owner, Schematics LMD=26-Jan-2023



3683652

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 13583828
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

Terminal Part Information

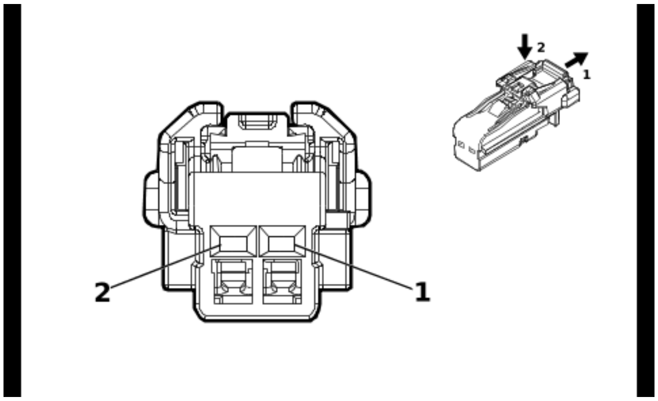
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

M51P Front Seat Adjuster Actuator - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	YE / BU	290	Passenger Seat Horizontal Motor Rearward Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	YE / WH	296	Passenger Seat Horizontal Motor Forward Control	I	—
4	—	—	—	Not Occupied	—	—

M53D Front Seat Back Lumbar Motor - Driver

FIGURESIO=6217624 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 6098-8988
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

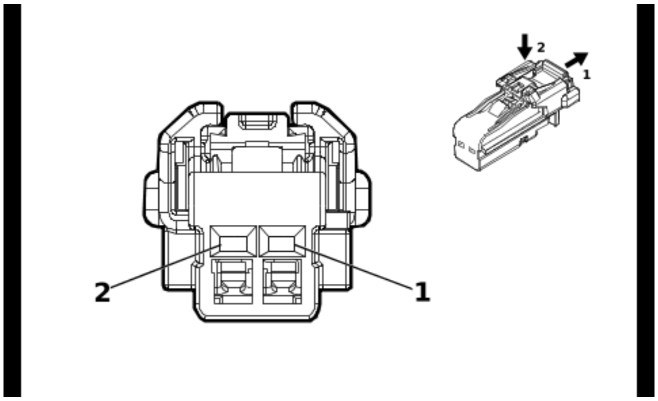
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

M53D Front Seat Back Lumbar Motor - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU	611	Driver Seat Lumbar Support Motor Forward Control	I	—
2	0.75	VT	610	Driver Seat Lumbar Support Motor Backward Control	I	—

M53P Front Seat Back Lumbar Motor - Passenger

FIGURESIO=6217625 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 6098-8988
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

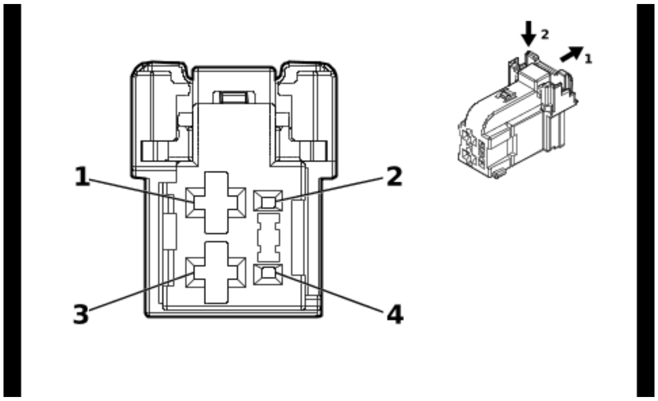
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

M53P Front Seat Back Lumbar Motor - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU	211	Passenger Seat Lumbar Support Motor Forward Control	I	—
2	0.75	VT	210	Passenger Seat Lumbar Support Motor Backward Control	I	—

M55D Front Seat Vertical Adjuster Actuator - Driver

FIGURESIO=6217626 Owner=Owner, Schematics
LMD=26-Jan-2023



5410027

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 2316171-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

Terminal Part Information

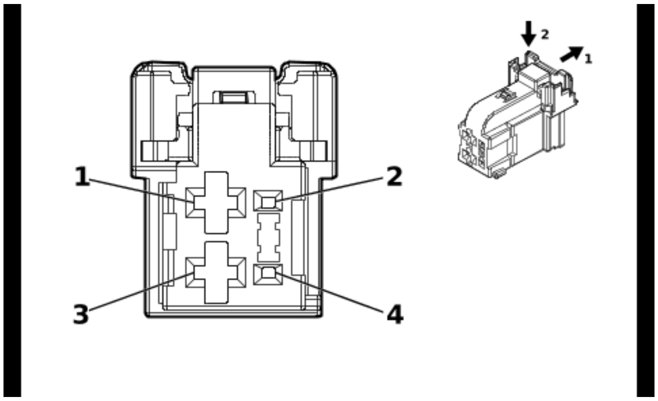
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M55D Front Seat Vertical Adjuster Actuator - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GY / BU	283	Driver Seat Rear Vertical Motor Down Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	YE	282	Driver Seat Rear Vertical Motor Up Control	I	—
4	—	—	—	Not Occupied	—	—

M55P Front Seat Vertical Adjuster Actuator - Passenger

FIGURESIO=6217627 Owner=Owner, Schematics
LMD=26-Jan-2023



5410027

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 2316171-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

Terminal Part Information

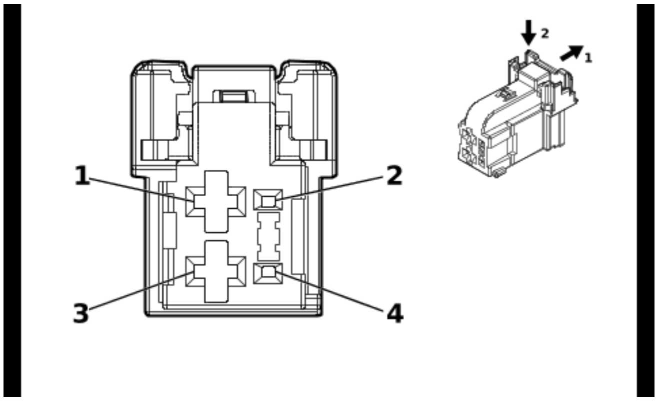
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M55P Front Seat Vertical Adjuster Actuator - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	BU / WH	289	Passenger Seat Rear Vertical Motor Down Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	GN / WH	288	Passenger Seat Rear Vertical Motor Up Control	I	—
4	—	—	—	Not Occupied	—	—

M56D Front Seat Recliner Actuator - Driver (A45)

FIGURESIO=6217628 Owner=Owner, Schematics LMD=26-Jan-2023



5410027

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 2316171-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

Terminal Part Information

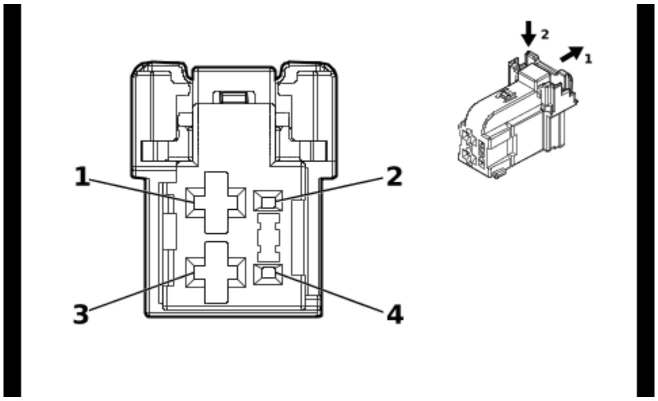
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M56D Front Seat Recliner Actuator - Driver (A45)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN / YE	276	Driver Seat Recline Motor Forward Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	BU / YE	277	Driver Seat Recline Motor Rearward Control	I	—
4	—	—	—	Not Occupied	—	—

M56P Front Seat Recliner Actuator - Passenger (AKE)

FIGURESIO=6217629 Owner=Owner, Schematics
LMD=26-Jan-2023



5410027

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 2316171-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64, 2.8 Series(BK)

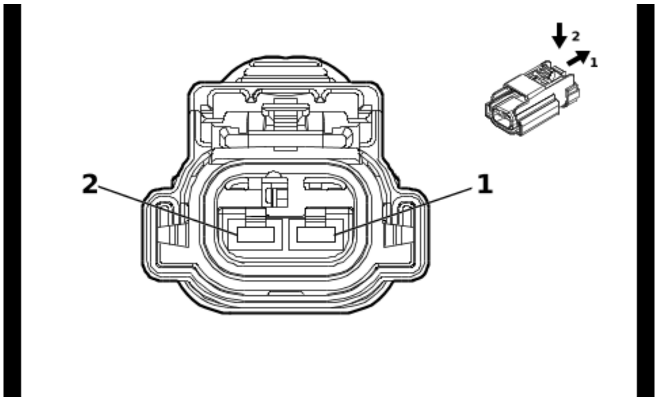
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M56P Front Seat Recliner Actuator - Passenger (AKE)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN	76	Passenger Seat Recline Motor Forward Control	I	—
2	—	—	—	Not Occupied	—	—
3	1.5	BU / BN	77	Passenger Seat Recline Motor Rearward Control	I	—
4	—	—	—	Not Occupied	—	—

M63 Rear Sliding Window Motor FIGURESIO=6217630 Owner=Owner, Schematics LMD=26-Jan-2023



5795169

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35286783
Service Connector: 19301518
Description: 2-Way F 2.8 APEX Series, Sealed(BK)

Terminal Part Information

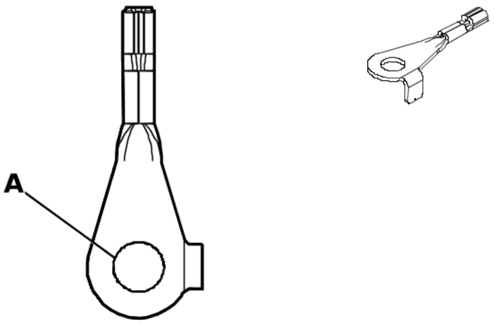
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M63 Rear Sliding Window Motor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2	YE	7454	Window Motor Rear Auxiliary Close Control	I	—
2	2	VT / YE	7453	Window Motor Rear Auxiliary Open Control	I	—

M64 Starter X1 (L5P)

FIGURESIO=6217631 Owner=Owner, Schematics LMD=26-Jan-2023



5200091

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35181369
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way Ring Terminal

Terminal Part Information

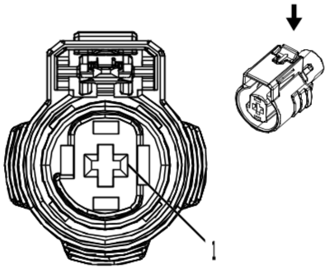
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

M64 Starter X1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	YE	6	Starter Solenoid Crank Ignition Voltage	I	—

M64 Starter X1 (L8T)

FIGURESIO=6217632 Owner=Owner, Schematics LMD=26-Jan-2023



2717134

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 15526411
Service Connector: 19300471
Description: 1-Way F 2.8 MCP Series, Sealed(BK)

Terminal Part Information

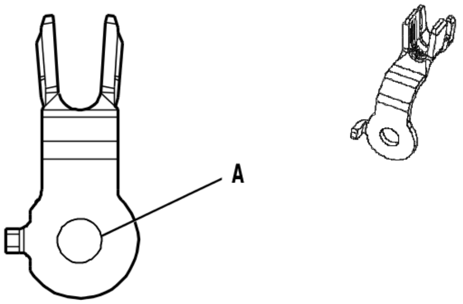
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M64 Starter X1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	YE	6	Starter Solenoid Crank Ignition Voltage	I	—

M64 Starter X2

FIGURESIO=6258022 Owner=Owner, Schematics LMD=26-Jan-2023



5020399

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 84496026
Service Connector: Service by Harness - See Part Catalog
Description: 1-Way

Terminal Part Information

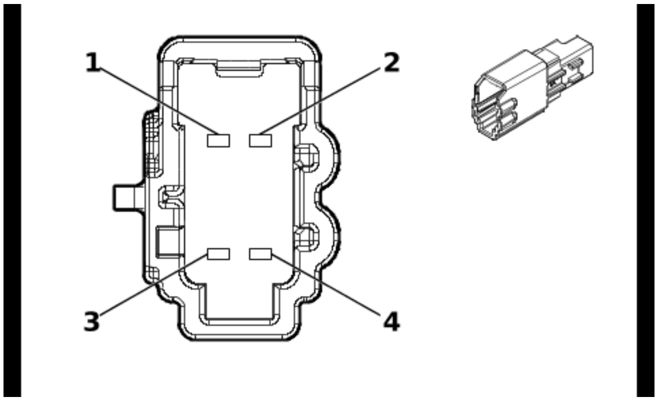
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

M64 Starter X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	35	RD / YE	2	Battery Positive Voltage	I	—

M73A Front Seat Back Ventilation Blower - Driver

FIGURESIO=6217633 Owner=Owner, Schematics LMD=26-Jan-2023



5423974

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 6098-9049
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(GY)

Terminal Part Information

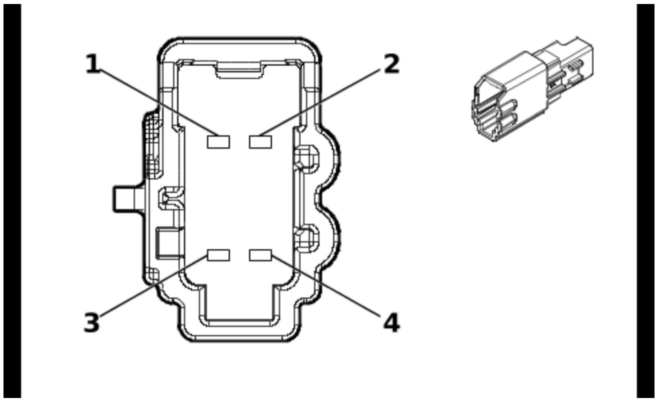
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

M73A Front Seat Back Ventilation Blower - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT / WH	1139	Run/Crank Ignition 1 Voltage	I	—
2	0.5	GN / VT	5906	Driver Seat Blower Motor Control 1	I	—
3	0.75	BK	1550	Ground	I	—
4	—	—	—	Not Occupied	—	—

M73B Front Seat Back Ventilation Blower - Passenger (KA1&KQV)

FIGURESIO=6217634 Owner=Owner, Schematics LMD=26-Jan-2023



5423974

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 6098-9049
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(GY)

Terminal Part Information

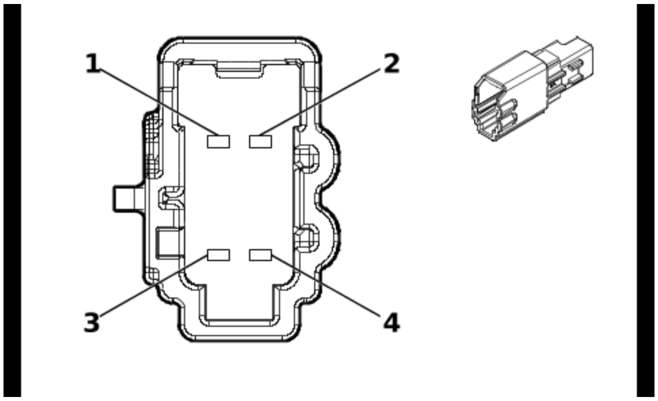
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

M73B Front Seat Back Ventilation Blower - Passenger (KA1&KQV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT / WH	1139	Run/Crank Ignition 1 Voltage	I	—
2	0.5	VT / WH	5908	Passenger Seat Blower Motor Control 1	I	—
3	0.75	BK	1350	Ground	I	—
4	—	—	—	Not Occupied	—	—

M73D Front Seat Cushion Ventilation Blower - Driver (KA1&KQV)

FIGURESIO=6217635 Owner=Owner, Schematics LMD=26-Jan-2023



5423974

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 6098-9049
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(GY)

Terminal Part Information

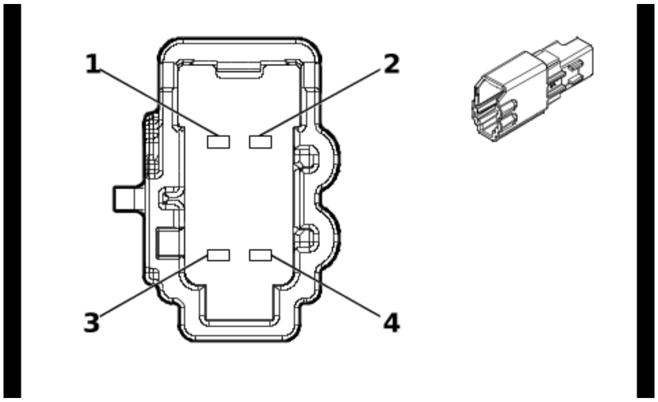
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

M73D Front Seat Cushion Ventilation Blower - Driver (KA1&KQV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT / WH	1139	Run/Crank Ignition 1 Voltage	I	—
2	0.5	GN / VT	5906	Driver Seat Blower Motor Control 1	I	—
3	0.75	BK	1550	Ground	I	—
4	—	—	—	Not Occupied	—	—

M73P Front Seat Cushion Ventilation Blower - Passenger (KA1&KQV)

FIGURESIO=6217636 Owner=Owner, Schematics LMD=26-Jan-2023



5423974

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 6098-9049
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M 1.2 MCON Series(GY)

Terminal Part Information

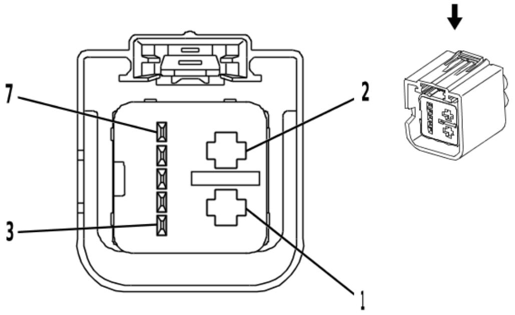
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

M73P Front Seat Cushion Ventilation Blower - Passenger (KA1&KQV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT / WH	1139	Run/Crank Ignition 1 Voltage	I	—
2	0.5	VT / WH	5908	Passenger Seat Blower Motor Control 1	I	—
3	0.75	BK	1350	Ground	I	—
4	—	—	—	Not Occupied	—	—

M74D Front Side Door Window Regulator Motor - Driver

FIGURESIO=6217637 Owner=Owner, Schematics
LMD=26-Jan-2023



2282932

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 15504732
Service Connector: Service by Harness - See Part Catalog
Description: 7-Way F 0.64, 2.8 Kaizen Timer Series, Sealed(GY)

Terminal Part Information

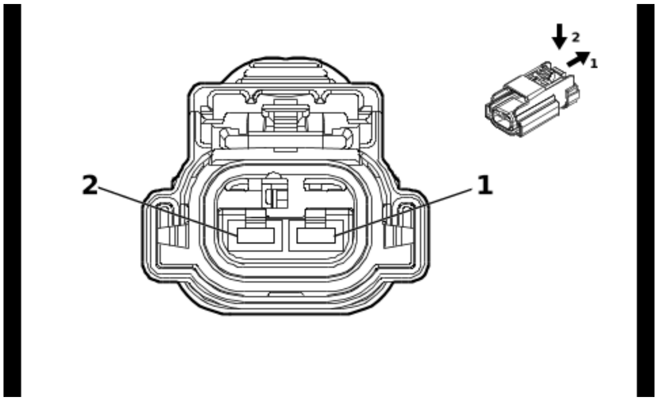
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required
II	Not required	J-35616-64B (L-BU)	No Tool Required

M74D Front Side Door Window Regulator Motor - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1550	Ground	I	—
2	2.5	RD / GY	3540	Battery Positive Voltage	I	—
3	0.5	GY / GN	2763	Window Switch Left Front Up Signal	II	—
4	0.5	GN / YE	6134	Body Control Module LIN Bus 3	II	—
5	0.5	GN	2766	Power Window Switch Left Front Express Signal	II	—
6	0.5	GY	745	Left Front Door Ajar Switch Signal	II	—
7	0.5	WH / BN	2764	Window Switch Left Front Down Signal	II	—

M74LR Rear Side Door Window Regulator Motor - Left

FIGURESIO=6217638 Owner=Owner, Schematics
LMD=26-Jan-2023



5795169

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Left
OEM Connector: 35286783
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 APEX Series, Sealed(BK)

Terminal Part Information

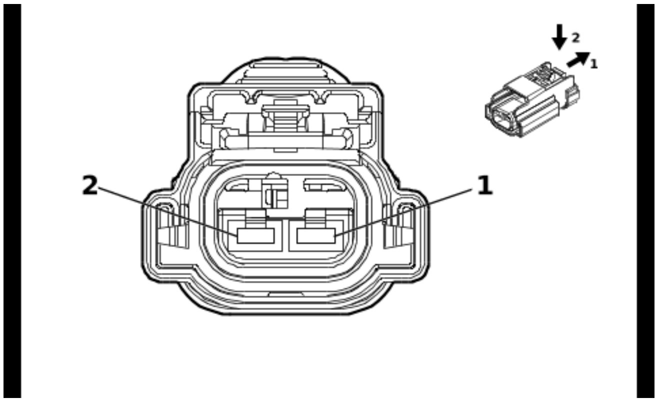
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M74LR Rear Side Door Window Regulator Motor - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2	BU / VT	668	Left Rear Window Motor Up Control	I	—
2	2	YE / BU	669	Left Rear Window Motor Down Control	I	—

M74P Front Side Door Window Regulator Motor - Passenger (AED)

FIGURESIO=6217639 Owner=Owner, Schematics LMD=26-Jan-2023



5795169

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 35286783
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 APEX Series, Sealed(BK)

Terminal Part Information

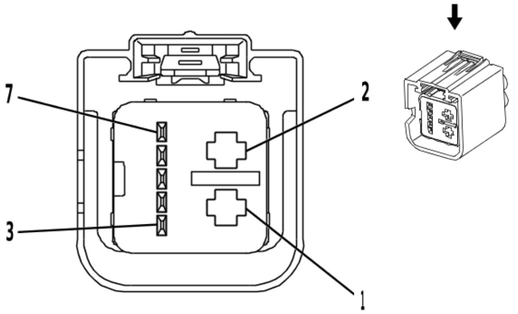
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M74P Front Side Door Window Regulator Motor - Passenger (AED)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2	GN / GY	666	Right Front Window Motor Up Control	I	—
2	2	YE / BU	667	Right Front Window Motor Down Control	I	—

M74P Front Side Door Window Regulator Motor - Passenger (AEF)

FIGURESIO=6217640 Owner=Owner, Schematics LMD=26-Jan-2023



2282932

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 15504732
Service Connector: Service by Harness - See Part Catalog
Description: 7-Way F 0.64, 2.8 Kaizen Timer Series, Sealed(GY)

Terminal Part Information

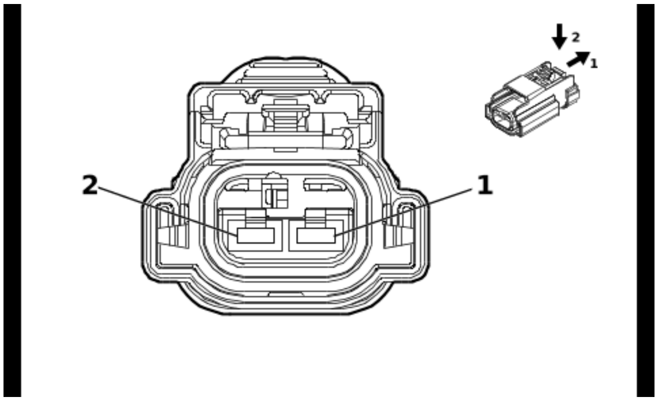
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required
II	Not required	J-35616-64B (L-BU)	No Tool Required

M74P Front Side Door Window Regulator Motor - Passenger (AEF)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1350	Ground	I	—
2	2.5	RD / BN	4240	Battery Positive Voltage	I	—
3	0.5	GN	1184	Window Switch Right Front Up Signal	II	—
4	0.5	GN / YE	6134	Body Control Module LIN Bus 3	II	—
5	0.5	VT / GY	2765	Window Switch Right Front Express Signal	II	—
6	0.5	GY	746	Right Front Door Ajar Switch Signal	II	—
7	0.5	BN	5295	Window Switch Right Front Down Signal	II	—

M74RR Rear Side Door Window Regulator Motor - Right

FIGURESIO=6217641 Owner=Owner, Schematics
LMD=26-Jan-2023



5795169

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Right
OEM Connector: 35286783
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 APEX Series, Sealed(BK)

Terminal Part Information

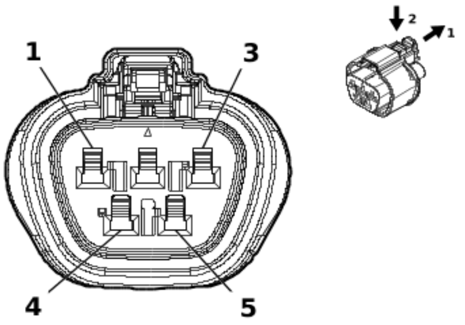
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M74RR Rear Side Door Window Regulator Motor - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2	BU / GY	670	Right Rear Window Motor Up Control	I	—
2	2	GN / BK	671	Right Rear Window Motor Down Control	I	—

M75 Windshield Wiper Motor

FIGURESIO=6217642 Owner=Owner, Schematics LMD=26-Jan-2023



6171401

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 13552584
Service Connector: Service by Harness - See Part Catalog
Description: 5-Way F 2.3 Sumitomo Series, Sealed(BK)

Terminal Part Information

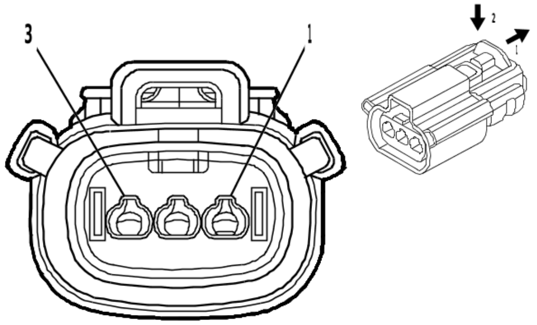
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-18 (BK)	No Tool Required

M75 Windshield Wiper Motor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2	YE / BN	95	Windshield Wiper Motor Low Speed Control	I	—
3	0.35	BN / GN	196	Windshield Wiper Motor Park Switch Signal	I	—
4	2	WH	92	Windshield Wiper Motor High Speed Control	I	—
5	2	BK	150	Ground	I	—

M96A Active Grille Air Shutter Actuator 1 (L5P)

FIGURESIO=6217643 Owner=Owner, Schematics LMD=26-Jan-2023



5095610

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35143007
Service Connector: 84719651
Description: 3-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

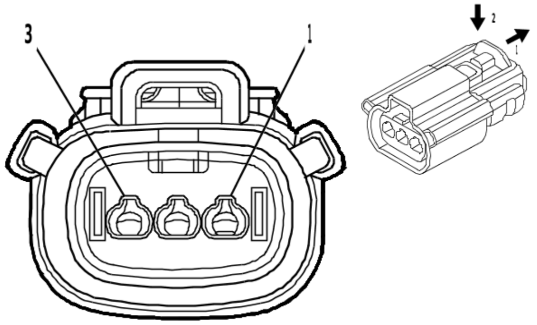
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-2A (GY)	No Tool Required

M96A Active Grille Air Shutter Actuator 1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / BU	5705	Powertrain Main Relay Control	II	—
2	0.5	GN / VT	4621	Engine Control Module LIN Bus 1	II	—
3	1.5	BK	450	Ground	I	—

M96A Active Grille Air Shutter Actuator 1 (L8T)

FIGURESIO=6217644 Owner=Owner, Schematics LMD=26-Jan-2023



5095610

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35143007
Service Connector: 84719651
Description: 3-Way F 1.5 Series, Sealed(BK)

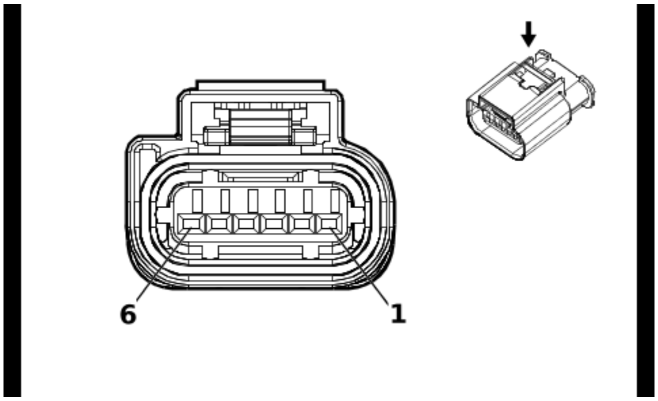
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-2A (GY)	No Tool Required

M96A Active Grille Air Shutter Actuator 1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / BU	5705	Powertrain Main Relay Control	II	—
2	0.5	GN / VT	4621	Engine Control Module LIN Bus 1	II	—
3	1.5	BK	450	Ground	I	—

M103 Turbocharger Vane Position Actuator (L5P) FIGURESIO=6217645 Owner=Owner, Schematics LMD=26-Jan-2023



5483505

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13507084
Service Connector: 84981395
Description: 6-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

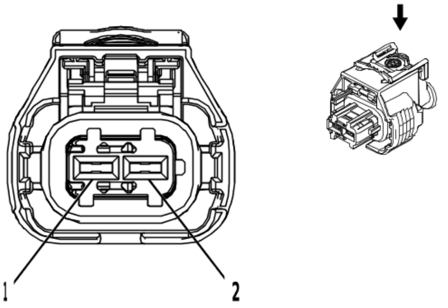
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

M103 Turbocharger Vane Position Actuator (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
2	0.5	BK / WH	6151	Engine Control Module Ground	I	—
3	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	I	—
4	0.5	WH	4055	Private Serial Data Powertrain CAN Bus [+] Serial Data	I	—
5	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	I	—
6	0.5	BU / GY	4054	Private Serial Data Powertrain CAN Bus [-] Serial Data	I	—

M104L Parking Brake Actuator - Left

FIGURESIO=6217646 Owner=Owner, Schematics LMD=26-Jan-2023



2577394

Connector Part Information

Harness Type: Chassis Rear Wiring Harness Extension Harness
OEM Connector: 1 928 405 714
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

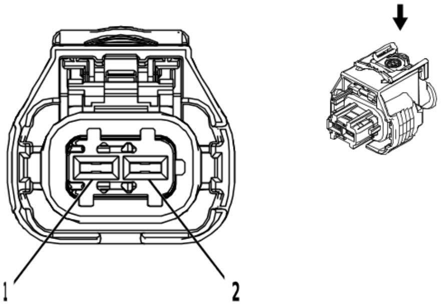
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M104L Parking Brake Actuator - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GN / BK	4369	Left Park Brake Motor Low Reference	I	—
2	2.5	WH	2001	Left Park Brake Motor Apply Control	I	—

M104R Parking Brake Actuator - Right

FIGURESIO=6217647 Owner=Owner, Schematics LMD=26-Jan-2023



2577394

Connector Part Information

Harness Type: Chassis Rear Wiring Harness Extension Harness
OEM Connector: 1 928 405 714
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

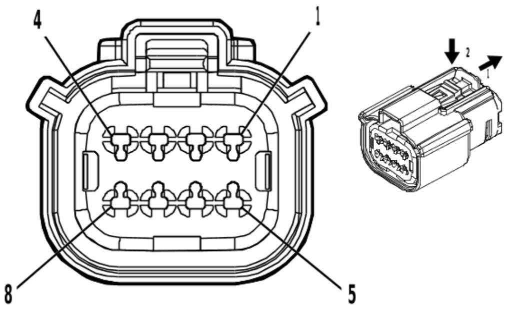
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

M104R Parking Brake Actuator - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	4368	Right Park Brake Motor Low Reference	I	—
2	2.5	GN / VT	1988	Right Park Brake Motor Apply Control	I	—

M125 Pickup Box Endgate Power Assist Actuator (QK1)

FIGURESIO=6217648 Owner=Owner, Schematics
LMD=26-Jan-2023



4846407

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 35037827
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

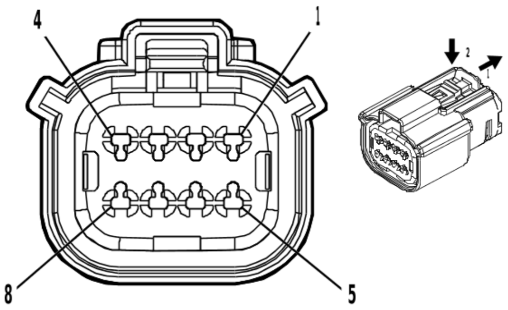
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

M125 Pickup Box Endgate Power Assist Actuator (QK1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BN / WH	4690	Rear Closure Open/Close Motor Close Control	I	—
2	0.5	GN	1577	Rear Closure Clutch Control	I	—
3	0.5	BU / BK	1590	Rear Closure Clutch Low Return	I	—
4	0.5	BN / RD	4683	Rear Closure Position Sensor Voltage Reference	I	—
5	1	WH	4689	Rear Closure Open/Close Motor Open Control	I	—
6	0.5	BN / YE	4686	Rear Closure Position Sensor Signal 2	I	—
7	0.5	BK / GN	4687	Rear Closure Position Sensor Low Reference	I	—
8	0.5	BU / WH	4685	Rear Closure Position Sensor Signal 1	I	—

M151L Pickup Box Endgate Cinch Latch Actuator - Left (QK1)

FIGURESIO=6217649 Owner=Owner, Schematics LMD=26-Jan-2023



4846407

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 35037827
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

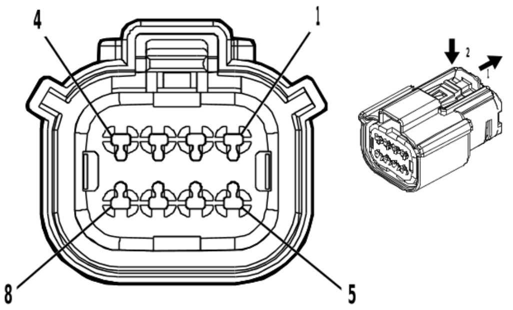
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

M151L Pickup Box Endgate Cinch Latch Actuator - Left (QK1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.5	BN / GY	10281	Rear Closure Latch Secondary Status Signal	I	—
3	0.5	GY / VT	4678	Rear Closure Latch Unlatch Status	I	—
4	0.5	BK / VT	4656	Rear Closure Object Sensor Low Reference	I	—
5	1	BN	4681	Rear Closure Cinch Latch Motor Cinch Control	I	—
6	1	BU / GY	4682	Rear Closure Cinch Latch Motor Release Control	I	—
7	0.5	WH / GN	8084	Rear Closure Latch Neutral Status	I	—
8	0.5	YE / BK	8085	Rear Closure Latch Primary Status	I	—

M151R Pickup Box Endgate Cinch Latch Actuator - Right (QK1)

FIGURESIO=6217650 Owner=Owner, Schematics LMD=26-Jan-2023



4846407

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 35037827
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.5 MX Series, Sealed(BK)

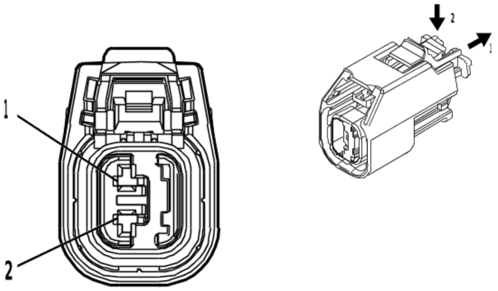
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

M151R Pickup Box Endgate Cinch Latch Actuator - Right (QK1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / BK	1575	Rear Closure Sensor Low Reference 2	I	—
2	0.5	BN	7736	Rear Closure Latch 2 Unlatch Status Signal	I	—
3	0.5	VT / WH	10284	Rear Closure Latch 2 Secondary Status Signal	I	—
4	—	—	—	Not Occupied	—	—
5	0.5	GN / BU	10283	Rear Closure Latch 2 Primary Status Signal	I	—
6	0.5	BU / BN	10282	Rear Closure Latch 2 Neutral Status Signal	I	—
7	1	GN	1499	Rear Closure Cinch Latch Motor 2 Cinch Control	I	—
8	1	BU	1509	Rear Closure Cinch Latch Motor 2 Release Control	I	—

P13 Horn FIGURESIO=6217651 Owner=Owner, Schematics LMD=26-Jan-2023



4889830

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33164011
Service Connector: 86802964
Description: 2-Way F 1.5 OCS Series, Sealed(BK)

Terminal Part Information

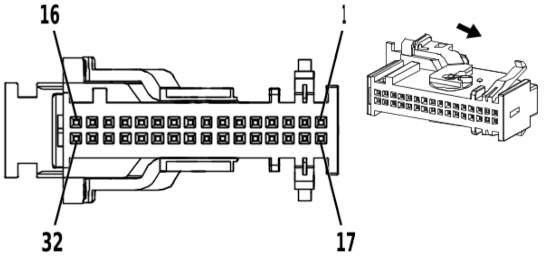
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

P13 Horn

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	650	Ground	I	—
2	0.75	BN / GY	29	Horn Control	I	—

P16 Instrument Panel Cluster Control Module X1

FIGURESIO=6217652 Owner=Owner, Schematics LMD=26-Jan-2023



627214

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 12198036
Service Connector: 13511333
Description: 32-Way F 0.64 Micro-Quadlock Series(BK with GY Cover)

Terminal Part Information

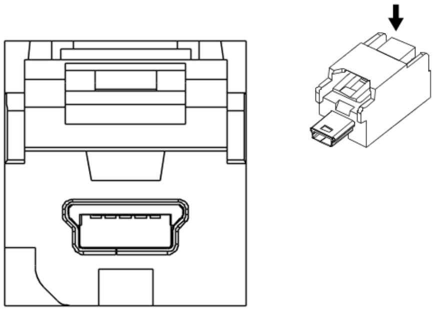
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300632	J-35616-64B (L-BU)	J-38125-215A

P16 Instrument Panel Cluster Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH	7216	Ethernet Bus 7 [-]	I	—
2 - 6	—	—	—	Not Occupied	—	—
7	0.5	RD / WH	1340	Battery Positive Voltage	I	—
8	0.35	VT / BK	339	Run/Crank Ignition 1 Voltage	I	—
9 - 10	—	—	—	Not Occupied	—	—
11	0.35	GY / BK	4787	Day Night LED Control	I	—
12	0.35	GY / YE	3885	Forward Collision Alert LED Control	I	—
13	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
14	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
15 - 16	—	—	—	Not Occupied	—	—
17	0.35	GN	7217	Ethernet Bus 7 [+]	I	—
18	—	—	—	Not Occupied	—	—
19	0.5	BK / WH	851	Signal Ground	I	—
20	0.5	GN / BK	3894	Instrument Panel Cluster Control Module LIN Bus 1	I	—
21 - 28	—	—	—	Not Occupied	—	—
29	0.35	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
30	0.35	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
31	—	—	—	Not Occupied	—	—
32	0.35	GN / BN	507	Wait To Start Indicator Control	I	—

P16 Instrument Panel Cluster Control Module X2

FIGURESIO=6217653 Owner=Owner, Schematics LMD=26-Jan-2023


3214018

Connector Part Information

Harness Type: Instrument Panel Wiring Harness USB
OEM Connector: 13893437
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 5-Way M 2.0 Mini-B USB Type(GY)

Terminal Part Information

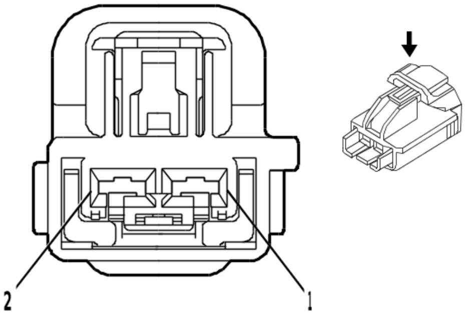
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

P16 Instrument Panel Cluster Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	USB	—	USB Serial Data	I	—

P19AFC Front Floor Speaker - Console

FIGURESIO=6217654 Owner=Owner, Schematics LMD=26-Jan-2023



1803142

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 10846819
Service Connector: 19367562
Description: 2-Way F Kaizen Series(L-GY)

Terminal Part Information

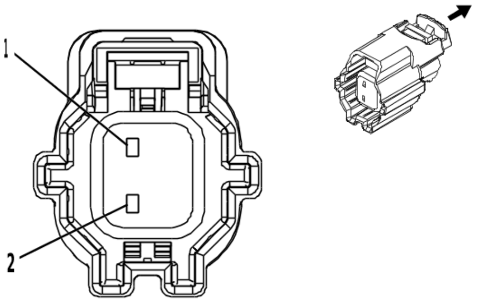
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

P19AFC Front Floor Speaker - Console

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GN / BK	1794	Left/Rear Subwoofer [-] Control	I	—
2	2.5	BU / GY	346	Left/Rear Subwoofer [+] Control	I	—

P19AG Radio Front Side Door Speaker - Left

FIGURESIO=6217655 Owner=Owner, Schematics LMD=26-Jan-2023



4223204

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 15548606
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

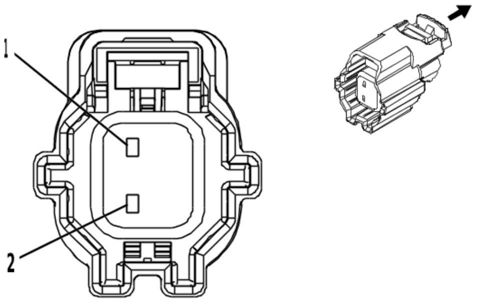
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

P19AG Radio Front Side Door Speaker - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / BU	118	Left Front Speaker [-] Control 1	I	—
2	0.75	BU	201	Left Front Speaker 1 [+] Control	I	—

P19AH Radio Front Side Door Speaker - Right

FIGURESIO=6217656 Owner=Owner, Schematics LMD=26-Jan-2023



4223204

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 15548606
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

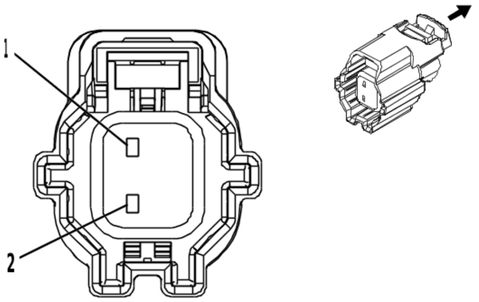
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

P19AH Radio Front Side Door Speaker - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE / BK	117	Right Front Speaker [-] Control 1	I	—
2	0.75	YE	200	Right Front Speaker 1 [+] Control	I	—

P19AL Radio Rear Side Door Speaker - Left

FIGURESIO=6217657 Owner=Owner, Schematics LMD=26-Jan-2023



4223204

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Left
OEM Connector: 15548606
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

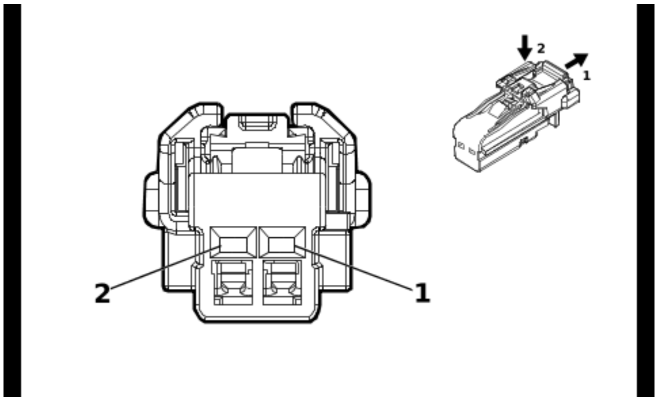
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

P19AL Radio Rear Side Door Speaker - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN / BK	116	Left Rear Speaker [-] Control	I	—
2	0.75	GN	199	Left Rear Speaker [+] Control	I	—

P19ALU Radio Rear Side Door Upper Speaker - Left

FIGURESIO=6217658 Owner=Owner, Schematics
LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Rear Side Door Wiring Harness
OEM Connector: 35311666
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

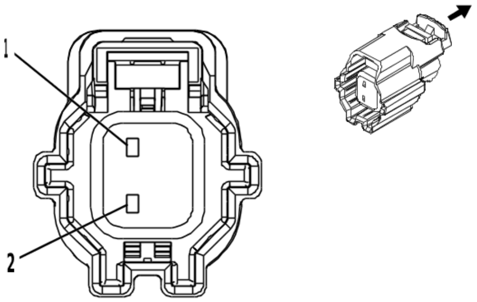
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

P19ALU Radio Rear Side Door Upper Speaker - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN / BK	116	Left Rear Speaker [-] Control	I	—
2	0.75	GN	199	Left Rear Speaker [+] Control	I	—

P19AM Radio Rear Side Door Speaker - Right

FIGURESIO=6217659 Owner=Owner, Schematics LMD=26-Jan-2023



4223204

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Right
OEM Connector: 15548606
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

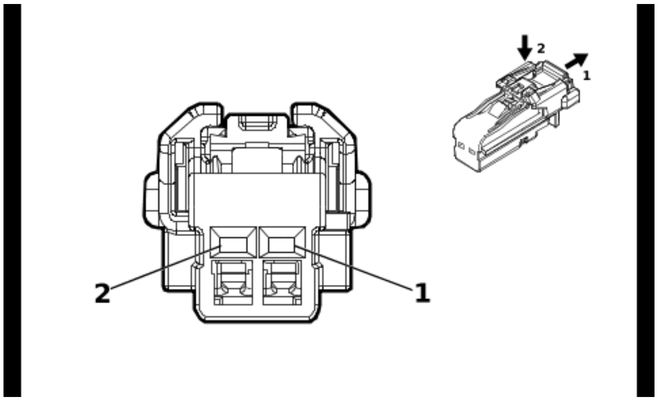
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

P19AM Radio Rear Side Door Speaker - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU / BK	115	Right Rear Speaker [-] Control	I	—
2	0.75	WH	46	Right Rear Speaker [+] Control	I	—

P19AMU Radio Rear Side Door Upper Speaker - Right

FIGURESIO=6258023 Owner=Owner, Schematics
LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 35311666
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

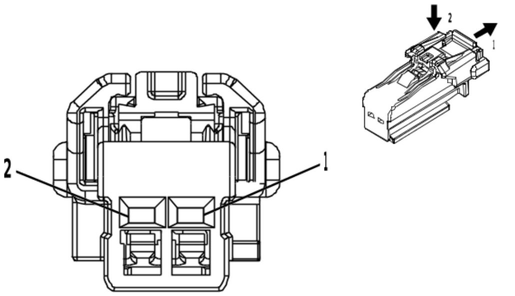
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

P19AMU Radio Rear Side Door Upper Speaker - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	GN / BK	115	Right Rear Speaker [-] Control	I	—
2	—	GN	46	Right Rear Speaker [+] Control	I	—

P19B Radio Front Center Speaker (UQS)

FIGURESIO=6258025 Owner=Owner, Schematics LMD=26-Jan-2023



4373379

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13532423
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(GY)

Terminal Part Information

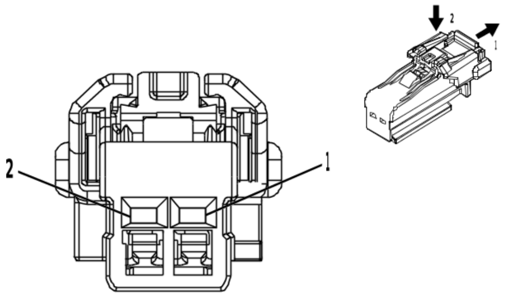
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

P19B Radio Front Center Speaker (UQS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BU / YE	1960	Front Center Speaker [-] Control	I	—
2	—	YE / WH	1860	Front Center Speaker [+] Control	I	—

P19H Radio Windshield Side Garnish Molding Speaker - Left Front (UQA / UQS)

FIGURESIO=6258026 Owner=Owner, Schematics LMD=26-Jan-2023



4373379

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35311601
Service Connector: 19369632
Description: 2-Way F 1.2 MCON Series(GY)

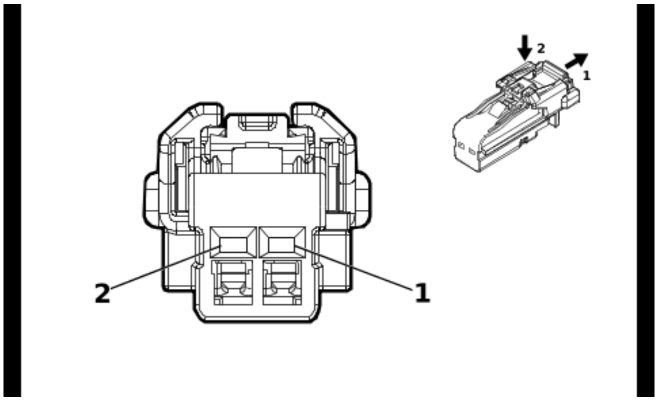
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

P19H Radio Windshield Side Garnish Molding Speaker - Left Front (UQA / UQS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU / BN	1957	Left Front Midrange Speaker [-] Control	I	—
2	0.75	BU / VT	1857	Left Front Midrange Speaker [+] Control	I	—

P19J Radio Front Speaker - Instrument Panel Left (UQF/UQS) FIGURESIO=6217661 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35311666
Service Connector: 87816612
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

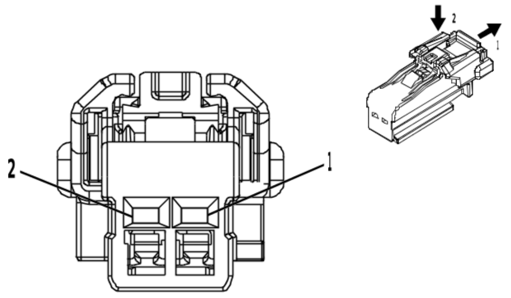
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

P19J Radio Front Speaker - Instrument Panel Left (UQF/UQS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / BU	118	Left Front Speaker [-] Control 1	I	—
2	0.75	BU	201	Left Front Speaker 1 [+] Control	I	—

P19V Radio Windshield Side Garnish Molding Speaker - Right Front (UQA / UQS)

FIGURESIO=6258028 Owner=Owner, Schematics LMD=26-Jan-2023



4373379

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35311601
Service Connector: 19369632
Description: 2-Way F 1.2 MCON Series(GY)

Terminal Part Information

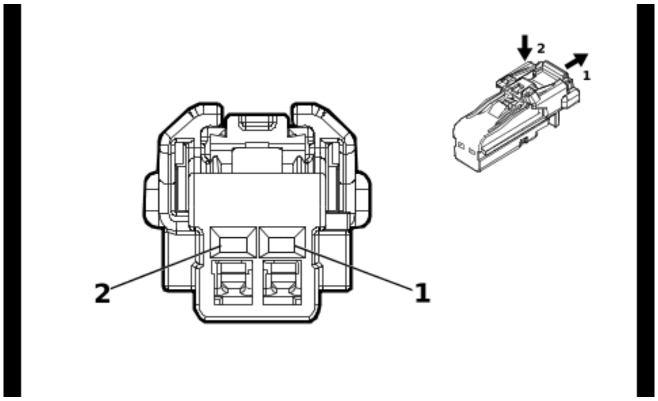
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

P19V Radio Windshield Side Garnish Molding Speaker - Right Front (UQA / UQS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / BK	1953	Right Front Midrange Speaker [-] Control	I	—
2	0.75	WH / YE	1853	Right Front Midrange Speaker [+] Control	I	—

P19W Radio Front Speaker - Instrument Panel Right (UQF/UQS)

FIGURESIO=6217663 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35311666
Service Connector: 87816612
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

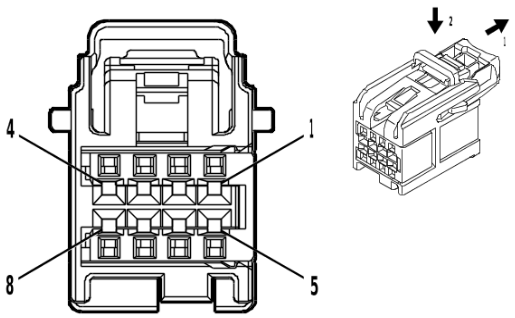
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

P19W Radio Front Speaker - Instrument Panel Right (UQF/UQS)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE / BK	117	Right Front Speaker [-] Control 1	I	—
2	0.75	YE	200	Right Front Speaker 1 [+] Control	I	—

P29 Head-Up Display X1

FIGURESIO=6217664 Owner=Owner, Schematics LMD=26-Jan-2023



4935776

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 15526972
Service Connector: 19370429
Description: 8-Way F 0.64 OCS Series(BK)

Terminal Part Information

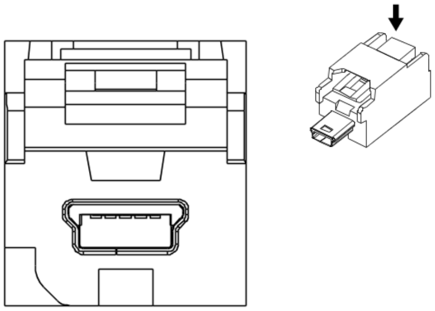
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

P29 Head-Up Display X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN / BK	3894	Instrument Panel Cluster Control Module LIN Bus 1	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	YE / WH	622	Head-Up Display Switch Signal	I	—
4	0.5	BK / WH	851	Signal Ground	I	—
5	—	—	—	Not Occupied	—	—
6	0.5	RD / WH	1340	Battery Positive Voltage	I	—
7	—	—	—	Not Occupied	—	—
8	0.35	BK / GN	5699	Head-Up Display Switch Low Reference	I	—

P29 Head-Up Display X2

FIGURESIO=6217665 Owner=Owner, Schematics LMD=26-Jan-2023



3214018

Connector Part Information

Harness Type: Instrument Panel Wiring Harness USB
OEM Connector: 13871470
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 5-Way M 2.0 Mini-B USB Type(GY)

Terminal Part Information

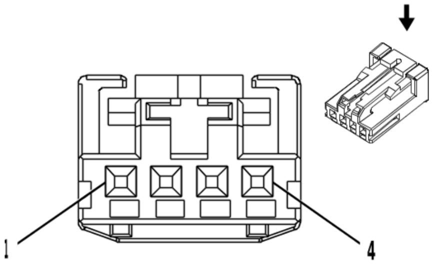
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

P29 Head-Up Display X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	USB	—	USB Serial Data	I	—

P43 Forward Collision Alert Display

FIGURESIO=6217666 Owner=Owner, Schematics LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 13969166
Service Connector: 19367524
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

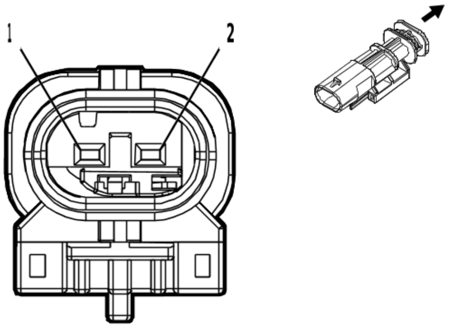
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

P43 Forward Collision Alert Display

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT / BK	339	Run/Crank Ignition 1 Voltage	I	—
2	0.35	GY / YE	3885	Forward Collision Alert LED Control	I	—
3	0.35	GY / BK	4787	Day Night LED Control	I	—
4	0.35	BK / WH	851	Signal Ground	I	—

P45L Front Seat Lane Departure Warning Actuator - Left

FIGURESIO=6217667 Owner=Owner, Schematics
LMD=26-Jan-2023



4569729

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 34899-2080
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series, Sealed(BK)

Terminal Part Information

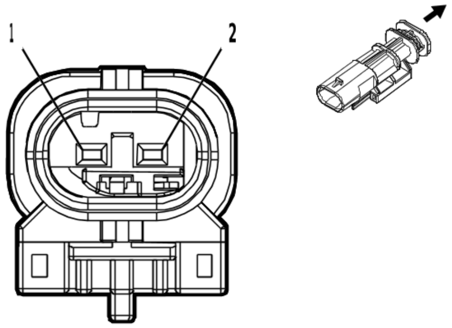
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

P45L Front Seat Lane Departure Warning Actuator - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1550	Ground	I	—
2	0.35	YE / BN	3037	Driver Seat Left Rear Haptic Movement Motor Control	I	—

P45R Front Seat Lane Departure Warning Actuator - Right

FIGURESIO=6217668 Owner=Owner, Schematics
LMD=26-Jan-2023



4569729

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 34899-2080
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series, Sealed(BK)

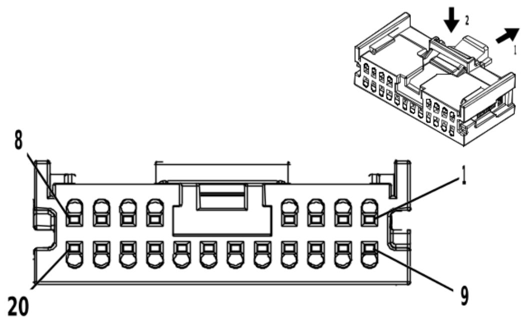
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

P45R Front Seat Lane Departure Warning Actuator - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1550	Ground	I	—
2	0.35	BN	3038	Driver Seat Right Rear Haptic Movement Motor Control	I	—

P53 Driver Information Display X1 FIGURESIO=6217669 Owner=Owner, Schematics LMD=26-Jan-2023



4231339

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35340139
Service Connector: 13544280
Description: 20-Way F Mini 50 Series(BK)

Terminal Part Information

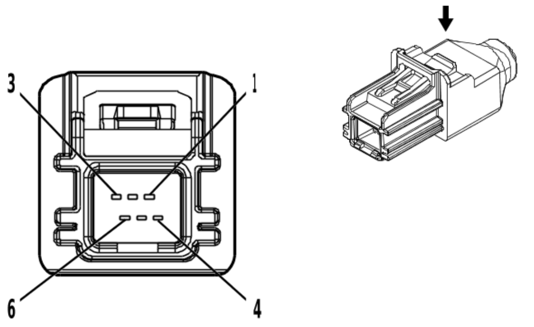
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19333221	EL-35616-58 (BK)	EL-38125-58

P53 Driver Information Display X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / RD	11246	Infotainment Display 5 Volt Reference	I	—
2	0.35	GY / BU	11247	Infotainment Display LCD Enable Signal	I	—
3	—	—	—	Not Occupied	—	—
4	0.35	BU	11235	Radio Switch Volume Up Signal	I	—
5	0.35	GY / BN	11234	Radio Switch Volume Down Signal	I	—
6	0.35	BN / WH	11233	Radio Switch Power ON/OFF Switch Signal	I	—
7	0.35	VT / WH	11245	Radio Switch Buttons Signal	I	—
8	0.35	BU / GY	11244	Radio Switch Dimming Control	I	—
9	0.35	BU / GN	11248	Infotainment Display Backlight Dimming Control	I	—
10	—	—	—	Not Occupied	—	—
11	0.35	BK / WH	11252	Infotainment Display Low Reference	I	—
12	0.35	YE / RD	11236	Radio Switch 5 Volt Reference	I	—
13	0.35	BK / BU	11237	Radio Switch Low Reference 1	I	—
14	0.35	BU	11235	Radio Switch Volume Up Signal	I	—
15	0.35	GY / BN	11234	Radio Switch Volume Down Signal	I	—
16	0.35	BN / WH	11233	Radio Switch Power ON/OFF Switch Signal	I	—
17	0.35	VT / WH	11245	Radio Switch Buttons Signal	I	—
18	0.35	BU / GY	11244	Radio Switch Dimming Control	I	—
19	0.35	GY / VT	11249	Infotainment Display Backlight Enable Control	I	—
20	0.35	BK / GN	11238	Radio Switch Low Reference 2	I	—

P53 Driver Information Display X2

FIGURESIO=6217670 Owner=Owner, Schematics LMD=26-Jan-2023



4806625

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 100337-1020
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 6-Way M HSAL-2 Series(BK)

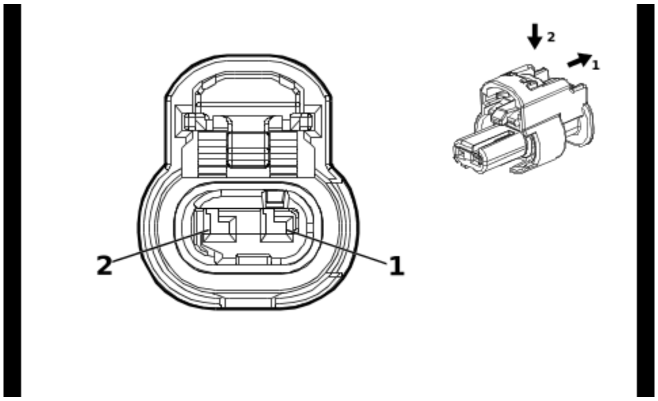
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

P53 Driver Information Display X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	4844	Radio LVDS (Low Voltage Differential Signaling) Low Reference	I	—
2	—	—	4845	Radio LVDS (Low Voltage Differential Signaling) Signal [+]	I	—
3	—	—	4846	Radio LVDS (Low Voltage Differential Signaling) Signal [-]	I	—
4 - 6	—	—	—	Not Occupied	—	—

Q2 Air Conditioning Clutch (L5P)
FIGURESIO=6258030 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33327048
Service Connector: 85519075
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

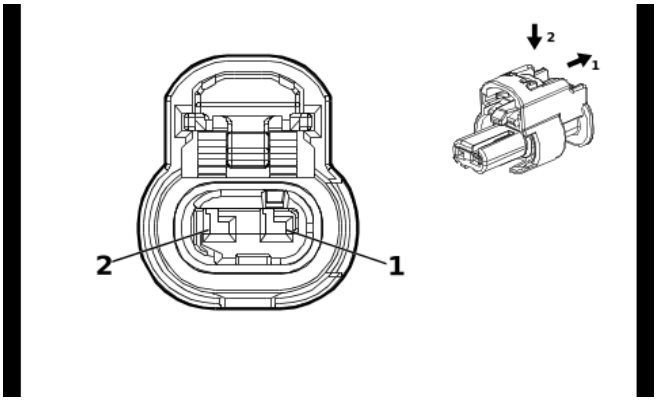
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

Q2 Air Conditioning Clutch (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	BK	450	Ground	I	—
2	0.75	BN / GN	59	Air Conditioning Compressor Clutch Control	I	—

Q2 Air Conditioning Clutch (L8T)

FIGURESIO=6258032 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33327048
Service Connector: 85519075
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

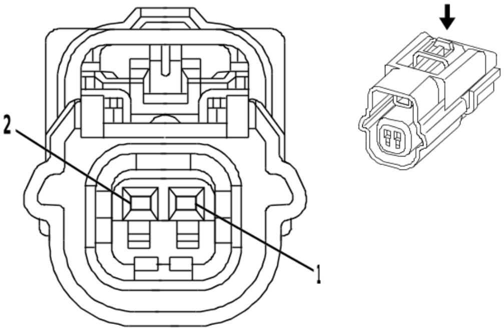
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

Q2 Air Conditioning Clutch (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	BK	450	Ground	I	—
2	0.75	BN / GN	59	Air Conditioning Compressor Clutch Control	I	—

Q6 Camshaft Position Actuator Solenoid Valve (L84 / L87)

FIGURESIO=6258035 Owner=Owner, Schematics LMD=26-Jan-2023



1664592

Connector Part Information

Harness Type: Camshaft Position Sensor Wire
OEM Connector: 89047381
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 0.64 Kaizen Series, Sealed(BK)

Terminal Part Information

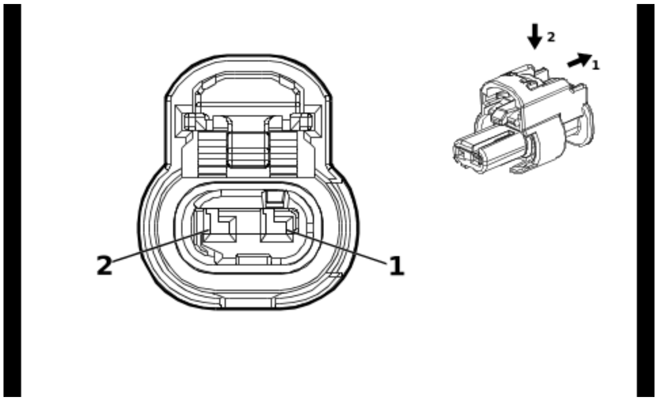
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

Q6 Camshaft Position Actuator Solenoid Valve (L84 / L87)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / BN	6753	Camshaft Position Actuator Solenoid Valve W Low Reference	I	—
2	0.5	VT / BN	5284	Intake Camshaft Position Actuator Solenoid Valve 1	I	—

Q9R Differential Locking Actuator - Rear

FIGURESIO=6217671 Owner=Owner, Schematics LMD=26-Jan-2023



4649903

Connector Part Information

Harness Type: Chassis Rear Wiring Harness Extension Harness
OEM Connector: 13512365
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

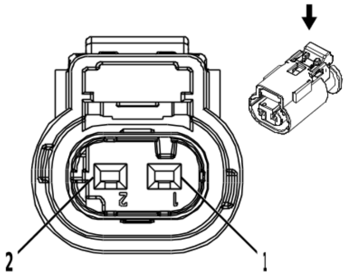
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

Q9R Differential Locking Actuator - Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT / BN	7258	Rear Differential Lock Actuator Control	I	—
2	0.75	GY / BK	7253	Rear Differential Lock Actuator Low Control	I	—

Q12 Evaporative Emission Canister Purge Solenoid Valve (L8T)

FIGURESIO=6217672 Owner=Owner, Schematics LMD=26-Jan-2023



2717066

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13735326
Service Connector: 13587326
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Terminal Part Information

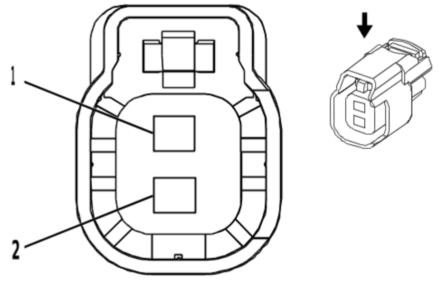
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

Q12 Evaporative Emission Canister Purge Solenoid Valve (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / BU	5293	Powertrain Main Relay Fused Supply Voltage 4	I	—
2	0.5	GN / BU	428	EVAP Canister Purge Solenoid Control	I	—

Q13 Evaporative Emission Canister Vent Solenoid Valve (L8T)

FIGURESIO=6217673 Owner=Owner, Schematics LMD=26-Jan-2023



2422378

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13771883
Service Connector: 13579002
Description: 2-Way F 1.5 Series, Sealed(BK)

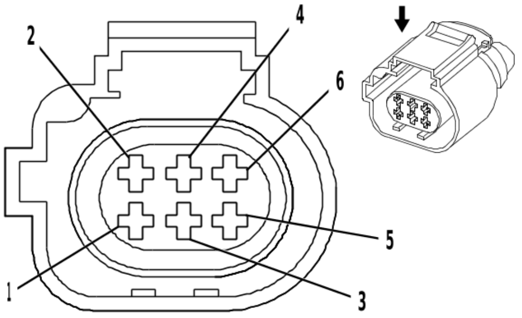
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

Q13 Evaporative Emission Canister Vent Solenoid Valve (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	1310	EVAP Vent Solenoid Valve Control	I	—
2	0.5	RD / WH	3440	Battery Positive Voltage	I	—

Q14 Exhaust Gas Recirculation Valve (L5P) FIGURESIO=6217674 Owner=Owner, Schematics LMD=26-Jan-2023



2216905

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 284716-5
Service Connector: 19354082
Description: 6-Way F 1.6 Micro-Timer Series, Sealed(GY)

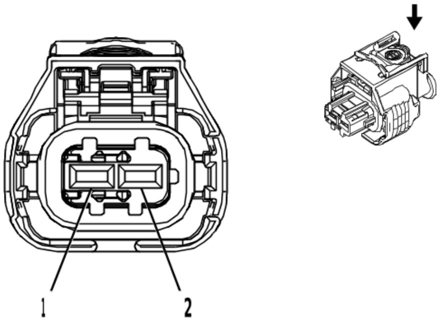
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

Q14 Exhaust Gas Recirculation Valve (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / VT	5764	Exhaust Gas Recirculation Valve High Control	I	—
2	0.5	BN / WH	5763	Exhaust Gas Recirculation Position Signal	I	—
3	—	—	—	Not Occupied	—	—
4	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	I	—
5	0.5	VT / BK	5746	Exhaust Gas Recirculation Valve Low Control	I	—
6	0.5	BU / RD	460	Engine Control Sensors 5 Volt Reference 1	I	—

Q17A Fuel Injector 1 (L5P) FIGURESIO=6217675 Owner=Owner, Schematics LMD=26-Jan-2023



2845578

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13343445
Service Connector: 19368140
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

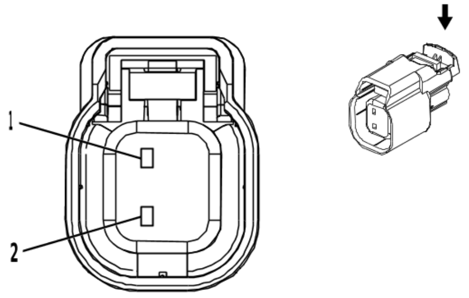
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q17A Fuel Injector 1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN / WH	4901	Direct Fuel Injector High Voltage Supply Cylinder 1	I	—
2	0.75	BN	4801	Direct Fuel Injector High Voltage Control Cylinder 1	I	—

Q17A Fuel Injector 1 (L8T)

FIGURESIO=6217676 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Left
OEM Connector: 340624008
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

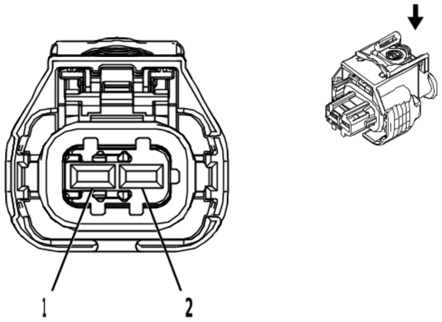
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q17A Fuel Injector 1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	BN / WH	4901	Direct Fuel Injector High Voltage Supply Cylinder 1	I	—
2	0.8	BN	4801	Direct Fuel Injector High Voltage Control Cylinder 1	I	—

Q17B Fuel Injector 2 (L5P)

FIGURESIO=6217677 Owner=Owner, Schematics LMD=26-Jan-2023



Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13343445
Service Connector: 19368140
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

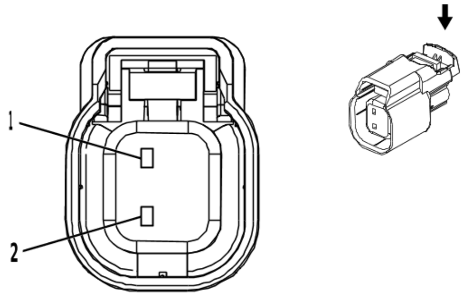
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q17B Fuel Injector 2 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU / GY	4902	Direct Fuel Injector High Voltage Supply Cylinder 2	I	—
2	0.75	BU	4802	Direct Fuel Injector High Voltage Control Cylinder 2	I	—

Q17B Fuel Injector 2 (L8T)

FIGURESIO=6217678 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Right
OEM Connector: 340624008
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

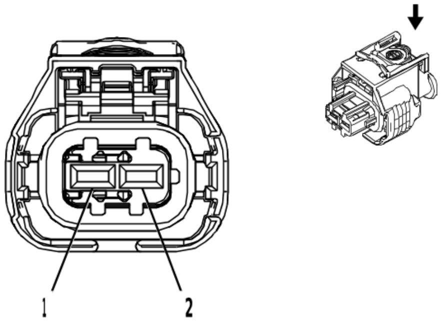
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q17B Fuel Injector 2 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	BU / GY	4902	Direct Fuel Injector High Voltage Supply Cylinder 2	I	—
2	0.8	BU	4802	Direct Fuel Injector High Voltage Control Cylinder 2	I	—

Q17C Fuel Injector 3 (L5P) FIGURESIO=6217679 Owner=Owner, Schematics LMD=26-Jan-2023



2845578

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13343445
Service Connector: 19368140
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

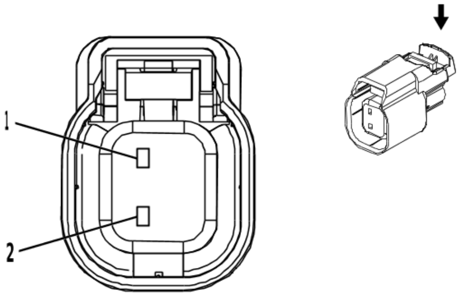
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q17C Fuel Injector 3 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN / GY	4903	Direct Fuel Injector High Voltage Supply Cylinder 3	I	—
2	0.75	GN	4803	Direct Fuel Injector High Voltage Control Cylinder 3	I	—

Q17C Fuel Injector 3 (L8T)

FIGURESIO=6217680 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Left
OEM Connector: 340624008
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

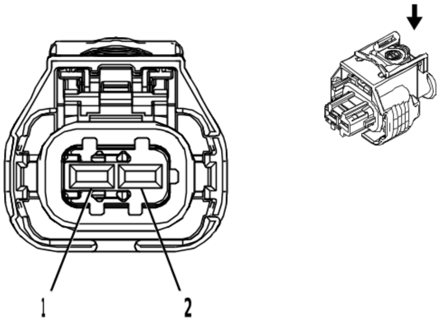
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q17C Fuel Injector 3 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	GN / GY	4903	Direct Fuel Injector High Voltage Supply Cylinder 3	I	—
2	0.8	GN	4803	Direct Fuel Injector High Voltage Control Cylinder 3	I	—

Q17D Fuel Injector 4 (L5P) FIGURESIO=6217681 Owner=Owner, Schematics LMD=26-Jan-2023



2845578

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13343445
Service Connector: 19368140
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

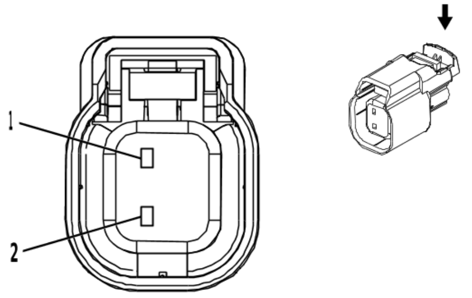
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q17D Fuel Injector 4 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU / WH	4904	Direct Fuel Injector High Voltage Supply Cylinder 4	I	—
2	0.75	GY / BU	4804	Direct Fuel Injector High Voltage Control Cylinder 4	I	—

Q17D Fuel Injector 4 (L8T)

FIGURESIO=6217682 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Right
OEM Connector: 340624008
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

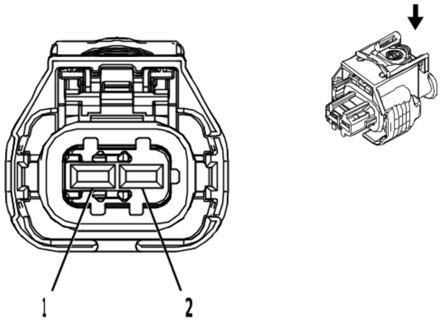
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q17D Fuel Injector 4 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	BU / WH	4904	Direct Fuel Injector High Voltage Supply Cylinder 4	I	—
2	0.8	GY / BU	4804	Direct Fuel Injector High Voltage Control Cylinder 4	I	—

Q17E Fuel Injector 5 (L5P)

FIGURESIO=6217683 Owner=Owner, Schematics LMD=26-Jan-2023



2845578

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13343445
Service Connector: 19368140
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

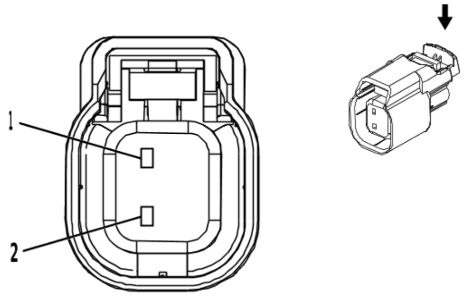
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q17E Fuel Injector 5 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN / WH	4905	Direct Fuel Injector High Voltage Supply Cylinder 5	I	—
2	0.75	WH / GN	4805	Direct Fuel Injector High Voltage Control Cylinder 5	I	—

Q17E Fuel Injector 5 (L8T)

FIGURESIO=6217684 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Left
OEM Connector: 340624008
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

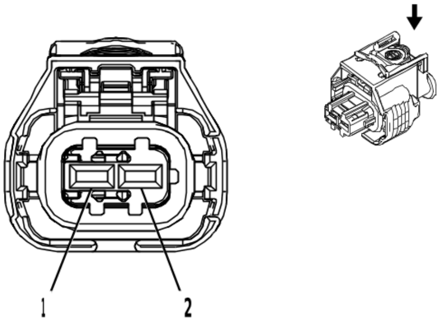
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q17E Fuel Injector 5 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	GN / WH	4905	Direct Fuel Injector High Voltage Supply Cylinder 5	I	—
2	0.8	WH / GN	4805	Direct Fuel Injector High Voltage Control Cylinder 5	I	—

Q17F Fuel Injector 6 (L5P) FIGURESIO=6217685 Owner=Owner, Schematics LMD=26-Jan-2023



2845578

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13343445
Service Connector: 19368140
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

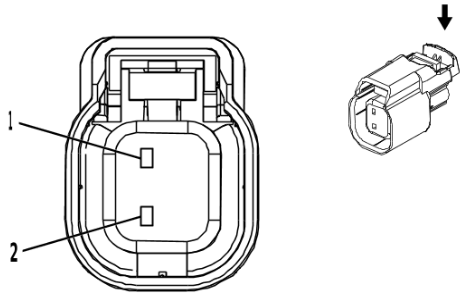
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q17F Fuel Injector 6 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT / GY	4906	Direct Fuel Injector High Voltage Supply Cylinder 6	I	—
2	0.75	VT / GN	4806	Direct Fuel Injector High Voltage Control Cylinder 6	I	—

Q17F Fuel Injector 6 (L8T)

FIGURESIO=6217686 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Right
OEM Connector: 340624008
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

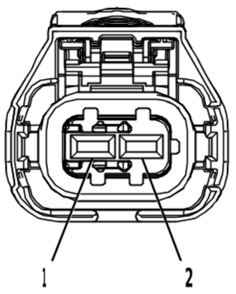
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

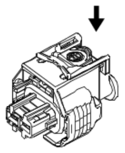
Q17F Fuel Injector 6 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	VT / GY	4906	Direct Fuel Injector High Voltage Supply Cylinder 6	I	—
2	0.8	VT / GN	4806	Direct Fuel Injector High Voltage Control Cylinder 6	I	—

Q17G Fuel Injector 7 (L5P)

FIGURESIO=6217687 Owner=Owner, Schematics LMD=26-Jan-2023





2845578

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13343445
Service Connector: 19368140
Description: 2-Way F 2.8 Series, Sealed(BK)

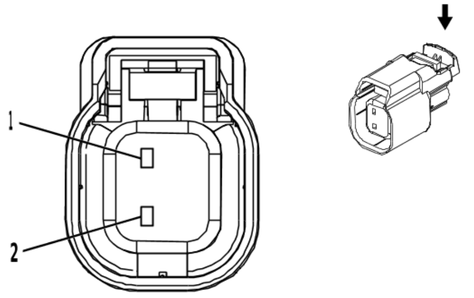
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q17G Fuel Injector 7 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH / YE	4907	Direct Fuel Injector High Voltage Supply Cylinder 7	I	—
2	0.75	YE / GY	4807	Direct Fuel Injector High Voltage Control Cylinder 7	I	—

Q17G Fuel Injector 7 (L8T) FIGURESIO=6217688 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Left
OEM Connector: 340624008
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

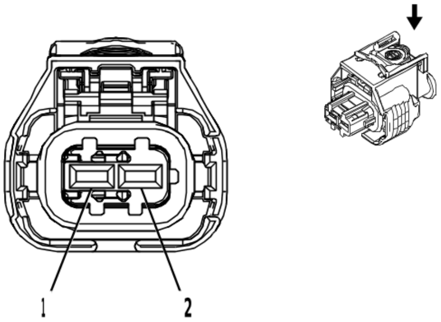
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q17G Fuel Injector 7 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	WH / YE	4907	Direct Fuel Injector High Voltage Supply Cylinder 7	I	—
2	0.8	YE / GY	4807	Direct Fuel Injector High Voltage Control Cylinder 7	I	—

Q17H Fuel Injector 8 (L5P)

FIGURESIO=6217689 Owner=Owner, Schematics LMD=26-Jan-2023



2845578

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13343445
Service Connector: 19368140
Description: 2-Way F 2.8 Series, Sealed(BK)

Terminal Part Information

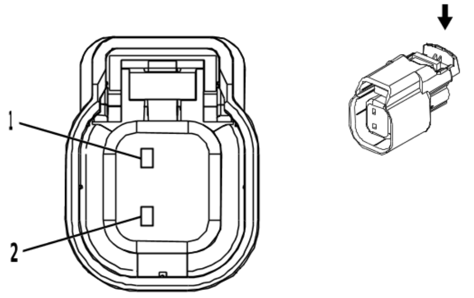
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q17H Fuel Injector 8 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY / WH	4908	Direct Fuel Injector High Voltage Supply Cylinder 8	I	—
2	0.75	GY	4808	Direct Fuel Injector High Voltage Control Cylinder 8	I	—

Q17H Fuel Injector 8 (L8T)

FIGURESIO=6217690 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Right
OEM Connector: 340624008
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

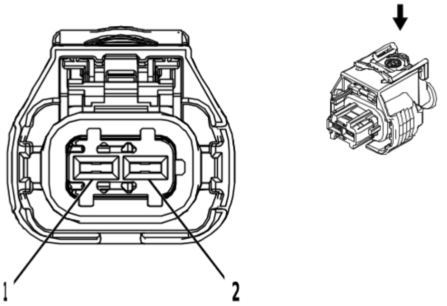
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q17H Fuel Injector 8 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.8	GY / WH	4908	Direct Fuel Injector High Voltage Supply Cylinder 8	I	—
2	0.8	GY	4808	Direct Fuel Injector High Voltage Control Cylinder 8	I	—

Q18A Fuel Pressure Regulator 1 (L5P)

FIGURESIO=6217691 Owner=Owner, Schematics LMD=26-Jan-2023



2577394

Connector Part Information

Harness Type: Engine Wiring Harness Extension
OEM Connector: 13343443
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 2.8 Series, Sealed(BK)

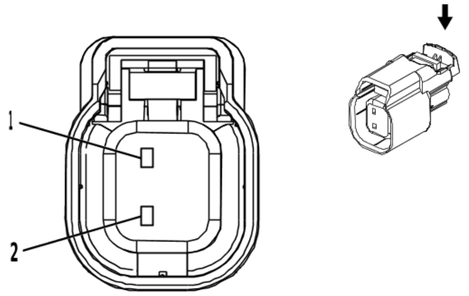
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

Q18A Fuel Pressure Regulator 1 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / BK	2929	Fuel Metering Solenoid Valve Low Control	I	—
2	0.5	YE	2928	Fuel Metering Solenoid Valve High Control	I	—

Q18B Fuel Pressure Regulator 2 (L5P) FIGURESIO=6217692 Owner=Owner, Schematics LMD=26-Jan-2023



2792100

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13581410
Service Connector: 19352068
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

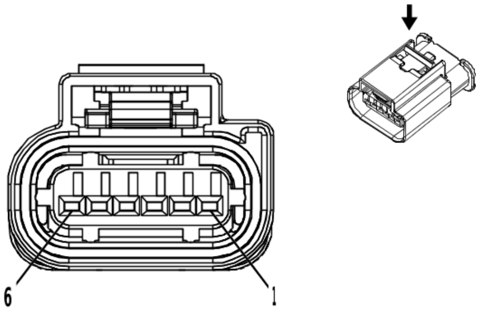
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q18B Fuel Pressure Regulator 2 (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / WH	2530	Fuel Rail Pressure Solenoid Valve Control	I	—
2	0.5	BK / YE	2834	Fuel Rail Pressure Solenoid Valve Low Control	I	—

Q20 Intake Airflow Control Valve (L5P)

FIGURESIO=6217693 Owner=Owner, Schematics LMD=26-Jan-2023



3747579

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13507087
Service Connector: 19352911
Description: 6-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

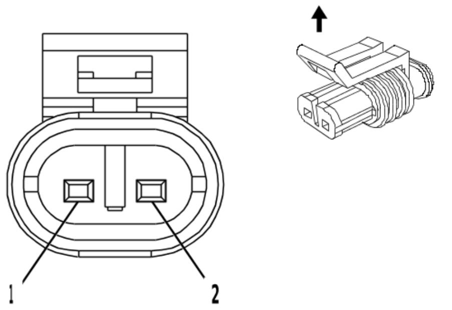
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

Q20 Intake Airflow Control Valve (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	581	Throttle Actuator Open Control	I	—
2	0.5	BN / WH	582	Throttle Actuator Close Control	I	—
3	0.5	BU / WH	3630	Throttle Position Sensor SENT 1 Signal	I	—
4	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	I	—
5	0.5	BU / RD	460	Engine Control Sensors 5 Volt Reference 1	I	—
6	—	—	—	Not Occupied	—	—

Q32P Shift Solenoid Valve - Power Take-Off (L5P)

FIGURESIO=6217694 Owner=Owner, Schematics LMD=26-Jan-2023



2448482

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 15369449
Service Connector: 88988136
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

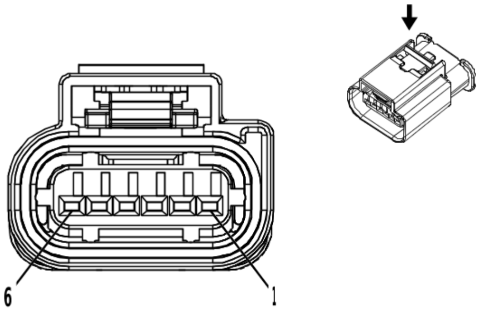
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

Q32P Shift Solenoid Valve - Power Take-Off (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU / WH	8235	Power Take Off Solenoid Control High	I	—
2	0.5	GN / WH	8236	Power Take Off Solenoid Control Low	I	—

Q38 Throttle Body (L8T)

FIGURESIO=6217695 Owner=Owner, Schematics LMD=26-Jan-2023



3747579

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33220833
Service Connector: 19352911
Description: 6-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

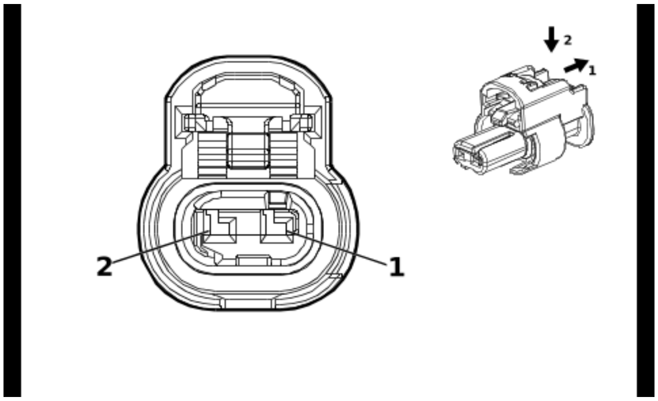
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

Q38 Throttle Body (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	581	Throttle Actuator Open Control	I	—
2	0.5	BN / WH	582	Throttle Actuator Close Control	I	—
3	0.5	BU / WH	3630	Throttle Position Sensor SENT 1 Signal	I	—
4	0.5	BK / BN	2752	Throttle Position Sensor Low Reference	I	—
5	0.5	BN / RD	2701	Throttle Position Sensor 5V Reference	I	—
6	—	—	—	Not Occupied	—	—

Q44 Engine Oil Pressure Control Solenoid Valve (L8T)

FIGURESIO=6258037 Owner=Owner, Schematics
LMD=26-Jan-2023



4036662

Connector Part Information

Harness Type: Oil Pump Flow Control Solenoid Valve Wire
OEM Connector: 13514238
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON-CB Series, Sealed(BK)

Terminal Part Information

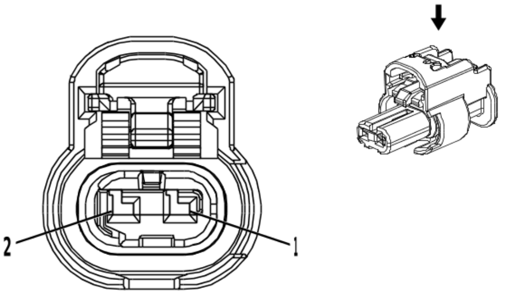
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (L-GN)	No Tool Required

Q44 Engine Oil Pressure Control Solenoid Valve (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / BU	5293	Powertrain Main Relay Fused Supply Voltage 4	I	—
2	0.5	BU	179	Engine Oil Pump Control	I	—

Q46 Air Conditioning Compressor Solenoid Valve (L5P) FIGURESIO=6258039 Owner=Owner, Schematics

LMD=26-Jan-2023



4335931

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33371691
Service Connector: 19366843
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

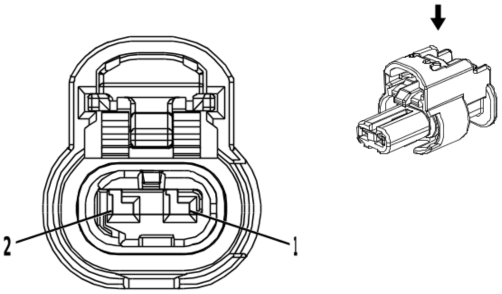
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

Q46 Air Conditioning Compressor Solenoid Valve (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU / YE	7574	Air Conditioning Compressor Solenoid Valve Control	I	—
2	0.75	BU / BN	7573	Air Conditioning Compressor Solenoid Valve Control	I	—

Q46 Air Conditioning Compressor Solenoid Valve (L8T) FIGURESIO=6258041 Owner=Owner, Schematics

LMD=26-Jan-2023



4335931

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 33371691
Service Connector: 19366843
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

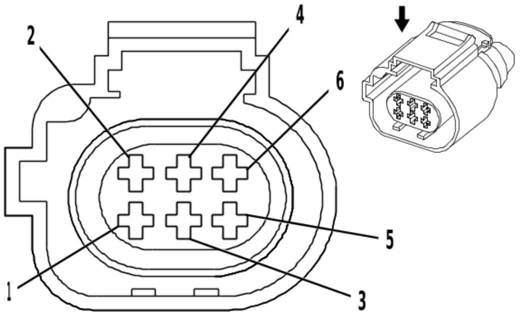
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

Q46 Air Conditioning Compressor Solenoid Valve (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU / YE	7574	Air Conditioning Compressor Solenoid Valve Control	I	—
2	0.75	BU / BN	7573	Air Conditioning Compressor Solenoid Valve Control	I	—

Q47 Exhaust Gas Recirculation Cooler Bypass Solenoid Valve (L5P)

FIGURESIO=6217696 Owner=Owner, Schematics LMD=26-Jan-2023



2216905

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 284716-5
Service Connector: 19354082
Description: 6-Way F 1.6 Micro-Timer Series, Sealed(GY)

Terminal Part Information

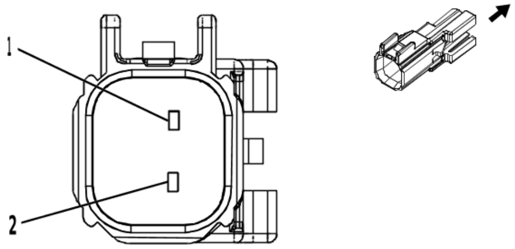
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

Q47 Exhaust Gas Recirculation Cooler Bypass Solenoid Valve (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / VT	3656	EGR Cooler Bypass Valve Close Control	I	—
2	0.5	GN / GY	3654	EGR Cooler Bypass Valve Position Sensor Signal	I	—
3	—	—	—	Not Occupied	—	—
4	0.5	BK / YE	548	Engine Control Sensors Low Reference 1	I	—
5	0.5	YE / GN	3655	EGR Cooler Bypass Valve Open Control	I	—
6	0.5	BU / RD	460	Engine Control Sensors 5 Volt Reference 1	I	—

Q61 Reductant Fluid Injector (L5P)

FIGURESIO=6217697 Owner=Owner, Schematics LMD=26-Jan-2023



3271068

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 13719748
Service Connector: 19301583
Description: 2-Way M 1.5 Series, Sealed(BK)

Terminal Part Information

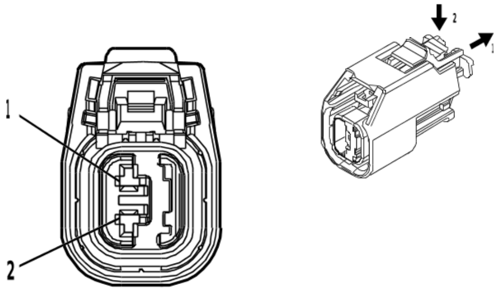
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-3 (GY)	No Tool Required

Q61 Reductant Fluid Injector (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / WH	3100	Diesel Exhaust Fluid Dosing Valve Low Control	I	—
2	0.5	BN	3099	Diesel Exhaust Fluid Dosing Valve High Control	I	—

Q64 Evaporative Emission System Switching Valve

FIGURESIO=6217698 Owner=Owner, Schematics
LMD=26-Jan-2023



4889830

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33164011
Service Connector: 86802964
Description: 2-Way F 1.5 OCS Series, Sealed(BK)

Terminal Part Information

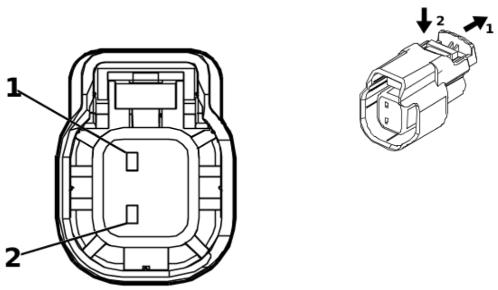
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-2A (GY)	No Tool Required

Q64 Evaporative Emission System Switching Valve

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / RD	11031	Fuel Tank Isolation Valve Supply Voltage	I	—
2	1.5	BK / WH	1951	Signal Ground	II	—

Q67 Exhaust Aftertreatment Fuel Injector - Chassis Cab

FIGURESIO=6217699 Owner=Owner, Schematics
LMD=27-Jan-2023



3028817

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13820418
Service Connector: 13580230
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

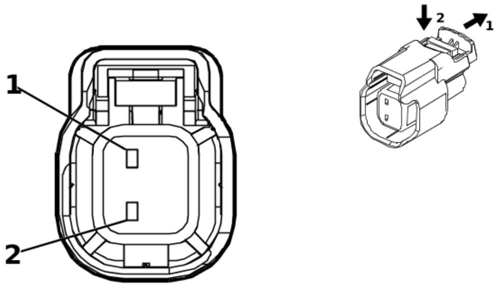
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q67 Exhaust Aftertreatment Fuel Injector - Chassis Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / BN	2927	Exhaust Aftertreatment Fuel Injector Low Control	I	—
2	0.5	BN / BU	2926	Exhaust Aftertreatment Fuel Injector High Control	I	—

Q67 Exhaust Aftertreatment Fuel Injector - without Chassis Cab

FIGURESIO=6217700 Owner=Owner, Schematics LMD=27-Jan-2023



5199958

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35259174
Service Connector: 84769203
Description: 2-Way F 1.5 Series, Sealed(BK)

Terminal Part Information

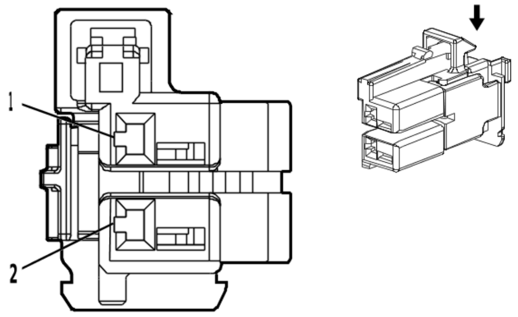
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

Q67 Exhaust Aftertreatment Fuel Injector - without Chassis Cab

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / BN	2927	Exhaust Aftertreatment Fuel Injector Low Control	I	—
2	0.5	BN / BU	2926	Exhaust Aftertreatment Fuel Injector High Control	I	—

Q77A Transmission Control Solenoid Valve 1 (MGM / MGU / MKM)

FIGURESIO=6258044 Owner=Owner, Schematics LMD=26-Jan-2023



4672650

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 2289523-1
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BN)

Terminal Part Information

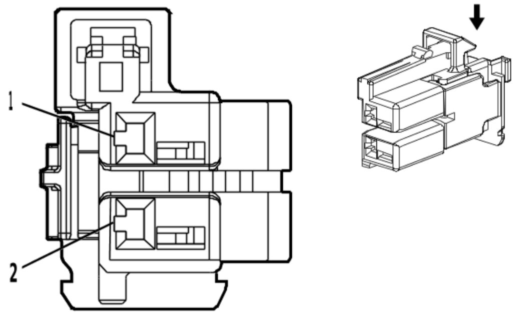
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77A Transmission Control Solenoid Valve 1 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	6388	Transmission High Side Driver 2 Control	I	—
2	0.5	BU / GN	6404	Clutch Solenoid Valve E Control	I	—

Q77B Transmission Control Solenoid Valve 2 (MGM / MGU / MKM)

FIGURESIO=6258045 Owner=Owner, Schematics LMD=26-Jan-2023



4672650

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 2289523-1
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BN)

Terminal Part Information

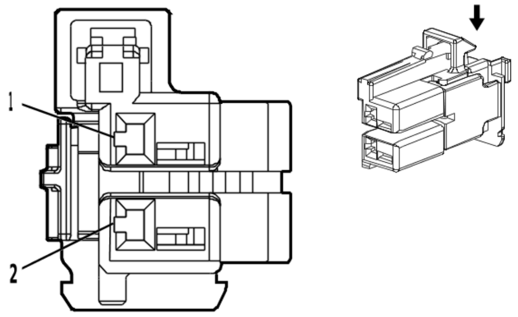
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77B Transmission Control Solenoid Valve 2 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	6388	Transmission High Side Driver 2 Control	I	—
2	0.5	GN / BN	6403	Clutch Solenoid Valve D Control	I	—

Q77C Transmission Control Solenoid Valve 3 (MGM / MGU / MKM)

FIGURESIO=6258047 Owner=Owner, Schematics LMD=26-Jan-2023



4672650

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 2289523-1
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BN)

Terminal Part Information

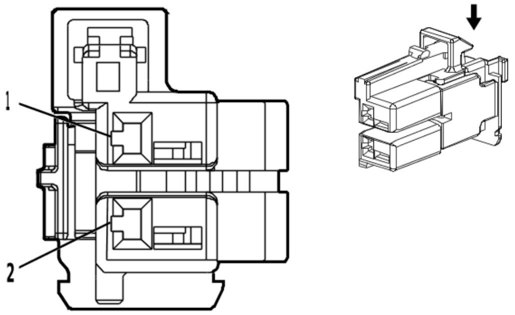
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77C Transmission Control Solenoid Valve 3 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	6388	Transmission High Side Driver 2 Control	I	—
2	0.5	GY	6402	Clutch Solenoid Valve C Control	I	—

Q77D Transmission Control Solenoid Valve 4 (MGM / MGU / MKM)

FIGURESIO=6258049 Owner=Owner, Schematics LMD=26-Jan-2023



4672650

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 2289523-1
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BN)

Terminal Part Information

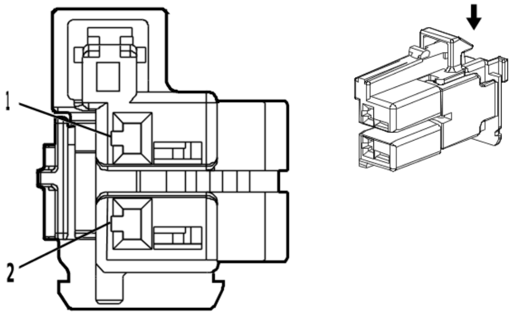
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77D Transmission Control Solenoid Valve 4 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	6388	Transmission High Side Driver 2 Control	I	—
2	0.5	BN / WH	4509	Transmission Clutch F Control	I	—

Q77E Transmission Control Solenoid Valve 5 (MGM / MGU / MKM)

FIGURESIO=6258053 Owner=Owner, Schematics LMD=26-Jan-2023



4672650

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 2289523-1
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BN)

Terminal Part Information

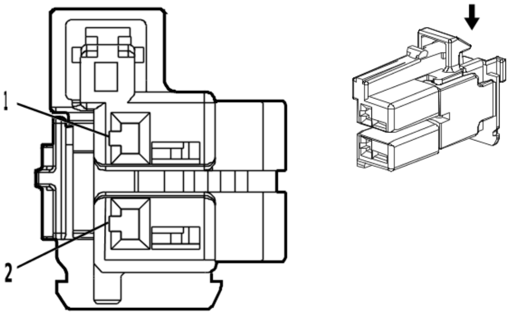
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77E Transmission Control Solenoid Valve 5 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	6388	Transmission High Side Driver 2 Control	I	—
2	0.5	YE / VT	4507	Transmission Clutch H Control	I	—

Q77F Transmission Control Solenoid Valve 6 (MGM / MGU / MKM)

FIGURESIO=6258054 Owner=Owner, Schematics LMD=26-Jan-2023



4672650

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 2289523-1
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BN)

Terminal Part Information

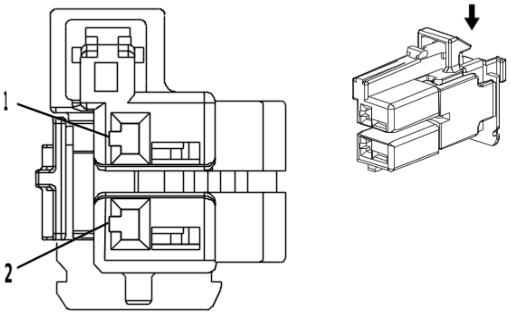
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77F Transmission Control Solenoid Valve 6 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	6388	Transmission High Side Driver 2 Control	I	—
2	0.5	BU / GY	4508	Transmission Clutch G Control	I	—

Q77G Transmission Control Solenoid Valve 7 (MGM / MGU / MKM)

FIGURESIO=6258056 Owner=Owner, Schematics LMD=26-Jan-2023



4364736

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 2289523-2
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BU)

Terminal Part Information

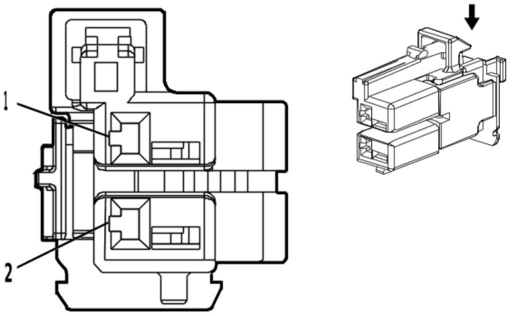
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77G Transmission Control Solenoid Valve 7 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	6387	Transmission High Side Driver 1 Control	I	—
2	0.5	GN / OG	1530	Transmission Line Pressure Control Solenoid Valve Control	I	—

Q77H Transmission Control Solenoid Valve 8 (MGM / MGU / MKM)

FIGURESIO=6258059 Owner=Owner, Schematics LMD=26-Jan-2023



4672683

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 2289523-3
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(GN)

Terminal Part Information

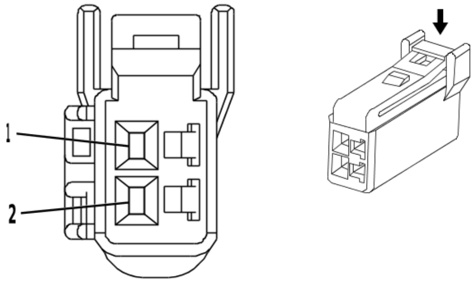
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77H Transmission Control Solenoid Valve 8 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	6387	Transmission High Side Driver 1 Control	I	—
2	0.5	GY / BN	422	Torque Converter Clutch Solenoid Valve Control	I	—

Q77J Transmission Control Solenoid Valve 9 (MGM / MGU / MKM)

FIGURESIO=6258061 Owner=Owner, Schematics LMD=26-Jan-2023



4051682

Connector Part Information

Harness Type: Transmission Control
OEM Connector: 7287-0122
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 040 III Series(NA)

Terminal Part Information

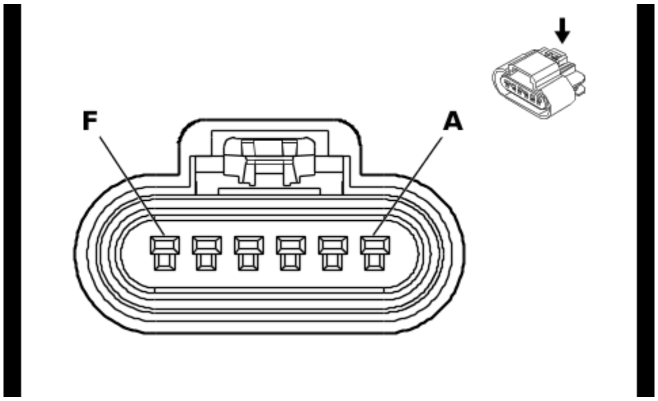
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (LT GN)	No Tool Required

Q77J Transmission Control Solenoid Valve 9 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	6388	Transmission High Side Driver 2 Control	I	—
2	0.5	VT	7819	Default Disable Solenoid Control	I	—

Q85 Cooling Fan Clutch

FIGURESIO=6258063 Owner=Owner, Schematics LMD=26-Jan-2023



632357

Connector Part Information

Harness Type: Fan Blade Clutch Wiring Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F Sealed

Terminal Part Information

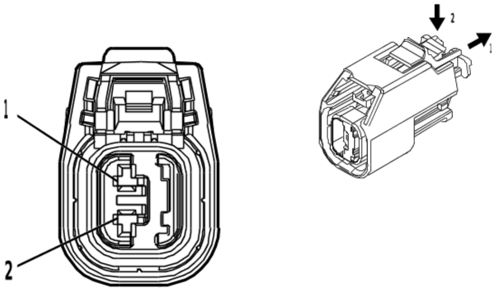
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

Q85 Cooling Fan Clutch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	—	RD	2368	Cooling Fan Control Signal	I	—
B	—	—	—	Not Occupied	—	—
C	—	OG	2365	Cooling Fan Speed Sensor 5V Reference	I	—
D	—	WH	2364	Cooling Fan Speed Signal	I	—
E	—	BK	6141	Cooling Fan Speed Sensor Low Reference	I	—
F	—	GN	550	Ground	I	—

R6A Terminating Resistor - High Speed Bus

FIGURESIO=6217701 Owner=Owner, Schematics LMD=26-Jan-2023



4889830

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 33164011
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.5 OCS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

R6A Terminating Resistor - High Speed Bus

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	4100	AUTOSAR CAN Bus [-] 4 Serial Data	I	—
2	0.5	BU / VT	4101	AUTOSAR CAN Bus [+] 4 Serial Data	I	—

R12 Power Take-Off Switch Diode (PTO)

—

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: DID00000
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way

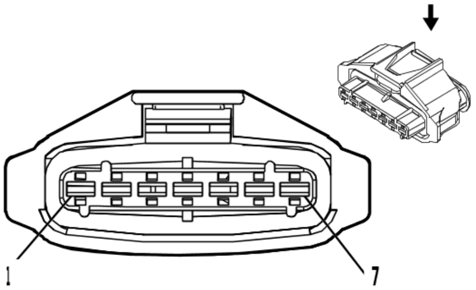
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

R12 Power Take-Off Switch Diode (PTO)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	—	BU / BN	4408	Power Take-Off Enable Signal	I	—
C	—	GY / GN	6239	Transmission Power Take-Off Engage/Disengage Signal Power	I	—

R29 Fuel Filter (L5P) FIGURESIO=6217702 Owner=Owner, Schematics LMD=26-Jan-2023



2537256

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 10774827
Service Connector: 19354080
Description: 7-Way F 2.8 Junior Power Timer Series, Sealed(BK)

Terminal Part Information

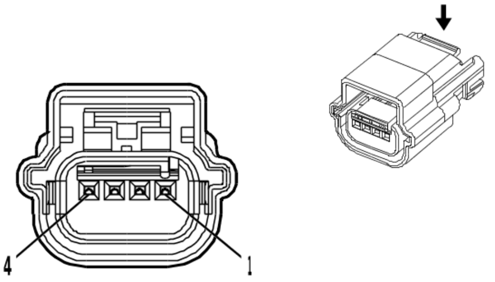
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

R29 Fuel Filter (L5P)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK / WH	1951	Signal Ground	I	—
2	2.5	BN / YE	2996	Fuel Heater Control 1	I	—
3	1	VT / GN	4320	Powertrain Sensor Bus Enable	I	—
4	0.5	BK / BU	6863	Water In Fuel Sensor Low Reference	I	—
5	0.5	BU / YE	6861	Water In Fuel Sensor Signal	I	—
6	0.5	BN / GY	7072	Fuel Temperature Sensor 1 Signal	I	—
7	0.5	BN / WH	7073	Fuel Temperature Sensor 1 Low Reference	I	—

S2 Automatic Transmission Manual Shift Shaft Position Switch (MHT / MQB)

FIGURESIO=6258067 Owner=Owner, Schematics LMD=26-Jan-2023



4789353

Connector Part Information

Harness Type: Automatic Transmission Wiring Harness - Case
OEM Connector: 6006314801
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Series, Sealed(BK)

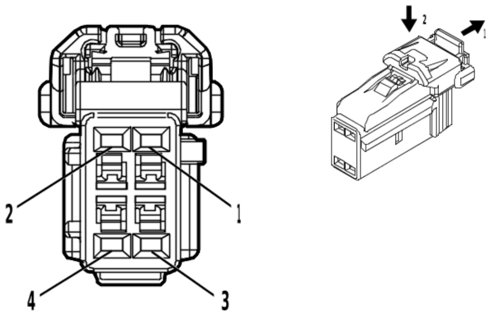
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S2 Automatic Transmission Manual Shift Shaft Position Switch (MHT / MQB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—
2	0.5	YE	3338	Transmission Internal Mode Switch Mode Control X	I	—
3	0.5	YE / GY	3337	Transmission Internal Mode Switch Mode Control Y	I	—
4	0.5	OG	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—

S3 Automatic Transmission Control FIGURESIO=6217703 Owner=Owner, Schematics LMD=26-Jan-2023



4872683

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35029308
Service Connector: 19369633
Description: 4-Way F 1.2 Series(BK)

Terminal Part Information

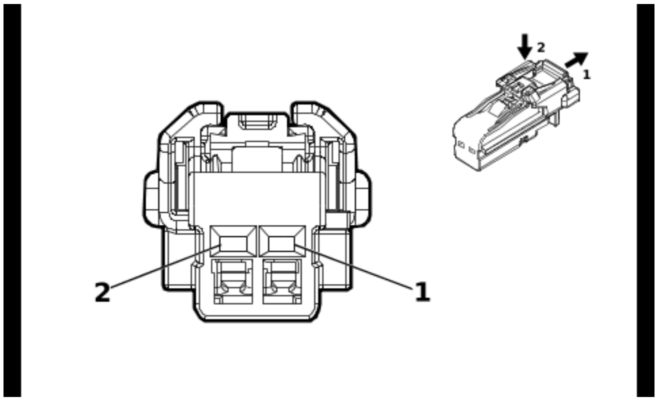
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

S3 Automatic Transmission Control

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE / WH	816	Brake Transmission Shift Interlock Solenoid Actuator Control	I	—
2	0.5	BK	1050	Ground	I	—
3	0.35	WH / VT	5905	Key Capture/Column Lock Shift Position Signal	I	—
4	0.5	BK	1050	Ground	I	—

S3C Automatic Transmission Control Lever

FIGURESIO=6217704 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35311666
Service Connector: 87816612
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

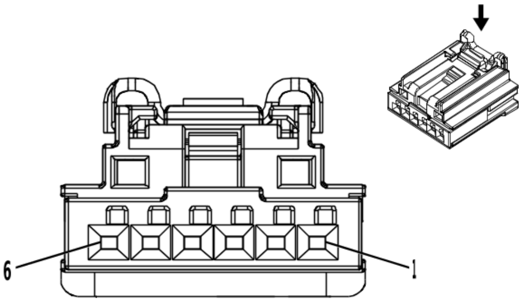
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

S3C Automatic Transmission Control Lever

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN / BU	3738	Tap Up/Tap Down Switch Signal 2	I	—
2	0.35	BK / WH	851	Signal Ground	I	—

S13D Door Lock Switch - Driver (DLN/DBG/DWI/DZC)

FIGURESIO=6217705 Owner=Owner, Schematics
LMD=26-Jan-2023



4145138

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Left
OEM Connector: 33251915
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

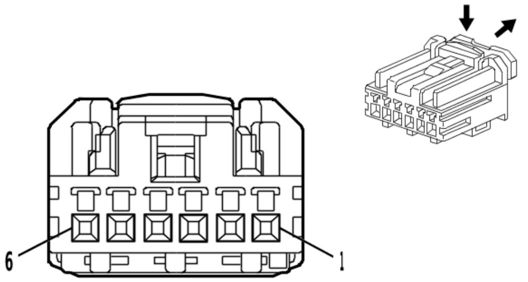
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S13D Door Lock Switch - Driver (DLN/DBG/DWI/DZC)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / GY	4784	Left Front Door LED Backlight Dimming Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	BN / YE	2771	Left Front Door Lock Switch Lock Signal	I	—
4	0.5	BN / WH	2772	Left Front Door Lock Switch Unlock Signal	I	—
5	0.5	BK	1550	Ground	I	—
6	—	—	—	Not Occupied	—	—

S13D Door Lock Switch - Driver (-DLN/DBG/DWI/DZC)

FIGURESIO=6217706 Owner=Owner, Schematics
LMD=26-Jan-2023



4650256

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Left
OEM Connector: 33315784
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 HCM Series(BK)

Terminal Part Information

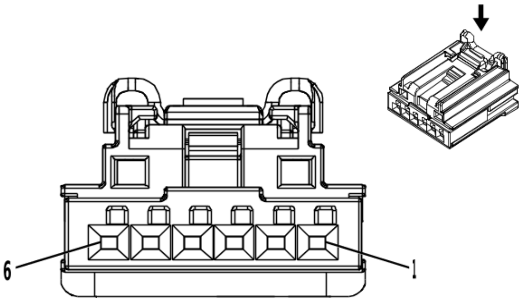
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S13D Door Lock Switch - Driver (-DLN/DBG/DWI/DZC)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5 0.5	BN / GY YE	4784 6817	Left Front Door LED Backlight Dimming Control LED Backlight Dimming Control 1	I I	((GF2/ GF5/ GFF) + AU3+ (DLN/ DBG/ DWI/ DZC)) / (AU3+ (DLN/ DBG/ DWI/ DZC)) AU3+ (DLN/ DBG/ DWI/ DZC) - GF2- GF5- GFF
2	0.5	BN / YE	2771	Left Front Door Lock Switch Lock Signal	I	—
3	0.5	BN / WH	2772	Left Front Door Lock Switch Unlock Signal	I	—
4	0.5	BK	1550	Ground	I	—
5 - 6	—	—	—	Not Occupied	—	—

S13P Door Lock Switch - Passenger (DLN/DBG/DWI/DZC)

FIGURESIO=6217707 Owner=Owner, Schematics
LMD=26-Jan-2023



4145138

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Right
OEM Connector: 33251915
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

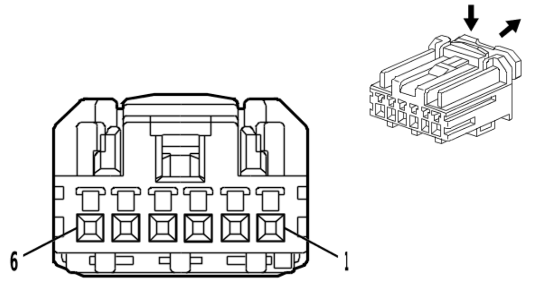
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S13P Door Lock Switch - Passenger (DLN/DBG/DWI/DZC)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY / VT	4638	LED Backlight Dimming Control Right Front Door	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	YE / VT	2773	Right Front Door Lock Switch Lock Control	I	—
4	0.5	BN / VT	2774	Right Front Door Lock Switch Unlock Control	I	—
5	0.5	BK	1350	Ground	I	—
6	—	—	—	Not Occupied	—	—

S13P Door Lock Switch - Passenger (-DLN/DBG/DWI/DZC)

FIGURESIO=6217708 Owner=Owner, Schematics
LMD=26-Jan-2023



4650256

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Right
OEM Connector: 33315784
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 HCM Series(BK)

Terminal Part Information

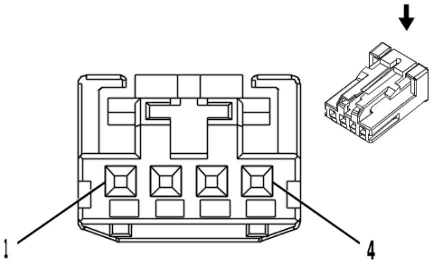
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S13P Door Lock Switch - Passenger (-DLN/DBG/DWI/DZC)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5 0.5	YE GY / VT	6817 4638	LED Backlight Dimming Control 1 LED Backlight Dimming Control Right Front Door	I I	((GF2/ GF5/ GFF) + AU3+ (DLN/ DBG/ DWI/ DZC)) / (AU3+ (DLN/ DBG/ DWI/ DZC)) AU3+ (DLN/ DBG/ DWI/ DZC) - GF2- GF5- GFF
2	0.5	YE / VT	2773	Right Front Door Lock Switch Lock Control	I	—
3	0.5	BN / VT	2774	Right Front Door Lock Switch Unlock Control	I	—
4	0.5	BK	1350	Ground	I	—
5 - 6	—	—	—	Not Occupied	—	—

S27 Head-Up Display Switch

FIGURESIO=6217709 Owner=Owner, Schematics LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 13969166
Service Connector: 19367524
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

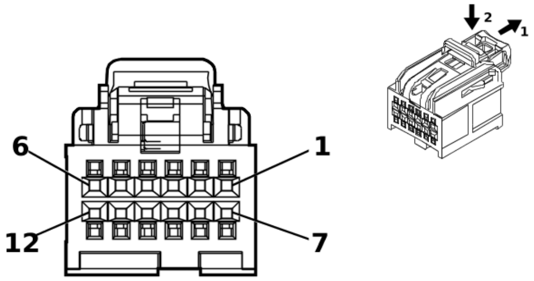
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S27 Head-Up Display Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
2	0.35	BK / WH	851	Signal Ground	I	—
3	0.35	BK / GN	5699	Head-Up Display Switch Low Reference	I	—
4	0.35	YE / WH	622	Head-Up Display Switch Signal	I	—

S30 Headlamp Switch

FIGURESIO=6217710 Owner=Owner, Schematics LMD=26-Jan-2023



4975223

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35016616
Service Connector: 13519750
Description: 12-Way F 0.64 OCS Series(BK)

Terminal Part Information

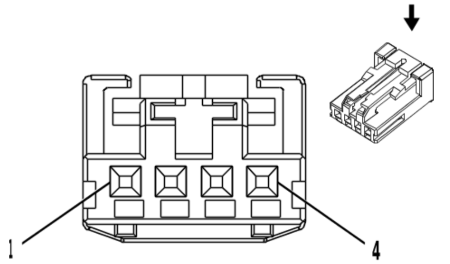
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300660	J-35616-64B (L-BU)	J-38125-215A

S30 Headlamp Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH / VT	103	Headlamp Switch On Signal	I	—
2	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.35	GN / BN	306	Headlamp Switch Off Signal	I	—
4	0.35	GY	158	Cargo Lamp Switch Signal	I	—
5	0.35	GN / GY	13	Headlamp Switch Park Lamp Signal	I	—
6	0.35	BU / GN	4248	Cargo Lamp Indicator Control	I	—
7	0.35	WH / GY	2935	Task Lamp Switch Signal	I	—
8	0.35	BK / WH	851	Signal Ground	I	—
9 - 10	—	—	—	Not Occupied	—	—
11	0.35	WH / BN	7555	Headlamp Switch Signal	I	—
12	0.35	YE	7556	Headlamp Switch Reference	I	—

S32R Rear Seat Heater Switch

FIGURESIO=6217711 Owner=Owner, Schematics LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 13969166
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

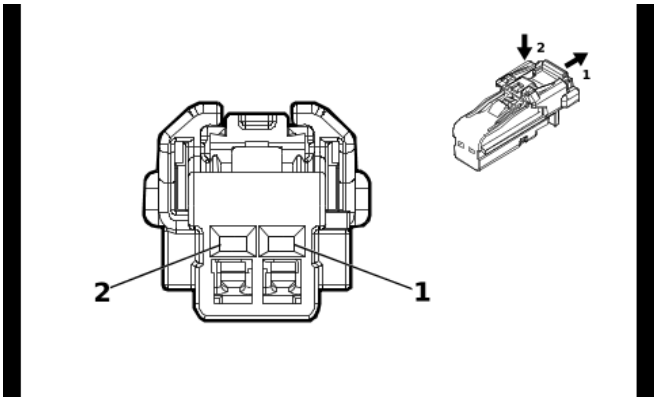
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S32R Rear Seat Heater Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BU	1240	Battery Positive Voltage	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	GN / VT	2857	Body Control Module LIN Bus 11	I	—
4	0.5	BK / WH	1451	Signal Ground	I	—

S33 Steering Wheel Horn Contact (NK5)

FIGURESIO=6258068 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Steering Wheel Horn Switch Wiring Harness
OEM Connector: 13517403
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 Series(BK)

Terminal Part Information

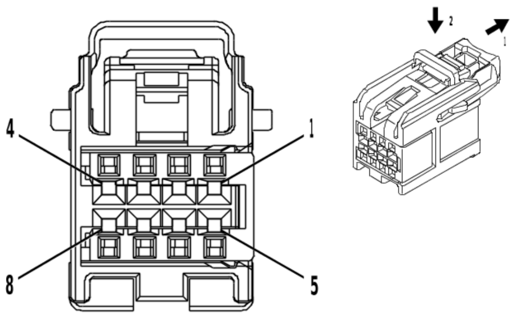
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	Not Available	No Tool Required

S33 Steering Wheel Horn Contact (NK5)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK / WH	6051	Steering Wheel Ground	I	—
2	0.35	GN / WH	3287	Horn Switch Signal	I	—

S38 On/Off Vehicle Switch

FIGURESIO=6217712 Owner=Owner, Schematics LMD=26-Jan-2023



4232228

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 15526973
Service Connector: 19353873
Description: 8-Way F 0.64 OCS Series(GY)

Terminal Part Information

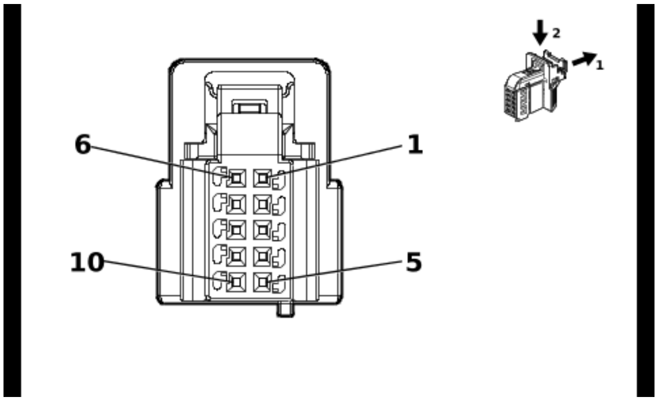
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S38 On/Off Vehicle Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / BK	5719	Ignition Mode Switch Start LED Signal	I	—
2	0.35	BN / BK	5720	Ignition Mode Switch Accessory LED Signal	I	—
3	0.35	BK / WH	851	Signal Ground	I	—
4	0.35	BU / GN	5723	Ignition Mode Switch Mode Voltage	I	—
5	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
6	—	—	—	Not Occupied	—	—
7	0.35	BK / GY	3559	Passive Start Switch 2 Low Reference	I	—
8	0.35	GN / BK	3558	Passive Start Switch Signal 2	I	—

S47D Front Seat Adjuster Memory Switch - Driver

FIGURESIO=6217713 Owner=Owner, Schematics LMD=26-Jan-2023



5838155

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Left
OEM Connector: 35380960
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 0.64 MQS Series(BK)

Terminal Part Information

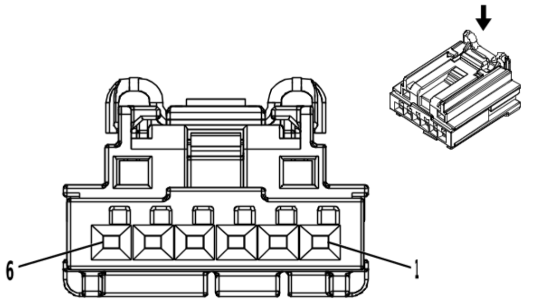
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S47D Front Seat Adjuster Memory Switch - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / GY	4784	Left Front Door LED Backlight Dimming Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	BN / YE	2771	Left Front Door Lock Switch Lock Signal	I	—
4	0.5	BN / WH	2772	Left Front Door Lock Switch Unlock Signal	I	—
5	0.5	BK / WH	1551	Signal Ground	I	—
6	0.5	BU / GN	614	Seat Memory Switch Set Signal	I	—
7	0.5	WH	615	Seat Memory Switch Signal 1	I	—
8 - 10	—	—	—	Not Occupied	—	—

S64D Front Seat Adjuster Switch - Driver (A45)

FIGURESIO=6217714 Owner=Owner, Schematics LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 2035363-4
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

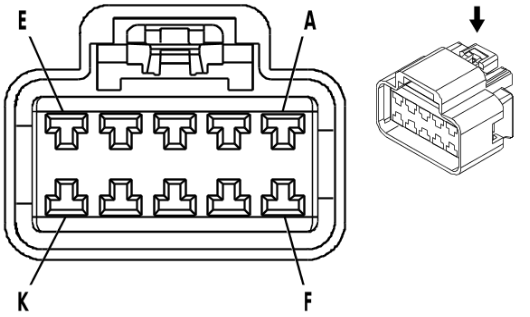
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S64D Front Seat Adjuster Switch - Driver (A45)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BN	2240	Battery Positive Voltage	I	—
2	—	—	—	Not Occupied	—	—
3	0.5 0.35	GN / GY GN / GY	3758 3758	Driver Seat Adjuster Memory Module LIN Bus 2 Driver Seat Adjuster Memory Module LIN Bus 2	I I	A45 A45+ AF6
4	0.5	BK	1550	Ground	I	—
5	0.5	BU / YE	2818	Driver Seat Auxiliary Adjustment Switch Signal	I	—
6	0.5	BK / VT	2817	Auxiliary Driver Seat Adjustment Switch Low Reference	I	—

S64D Front Seat Adjuster Switch - Driver (AZX-A45)

FIGURESIO=6217715 Owner=Owner, Schematics
LMD=26-Jan-2023



623046

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 35058909
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 280 GT Series(BK)

Terminal Part Information

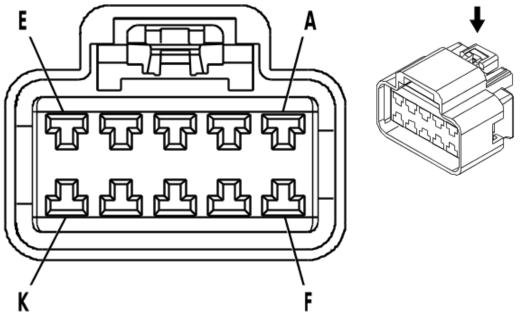
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

S64D Front Seat Adjuster Switch - Driver (AZX-A45)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	RD / YE	5040	Battery Positive Voltage	I	—
B	1.5	BU / YE	277	Driver Seat Recline Motor Rearward Control	I	—
C	1.5	YE / BU	285	Driver Seat Horizontal Motor Forward Control	I	—
D	1.5	GY / GN	284	Driver Seat Horizontal Motor Rearward Control	I	—
E	1.5	GY / BU	283	Driver Seat Rear Vertical Motor Down Control	I	—
F	1.5	GN / BN	286	Driver Seat Front Vertical Motor Up Control	I	—
G	1.5	YE	282	Driver Seat Rear Vertical Motor Up Control	I	—
H	1.5	GN / YE	276	Driver Seat Recline Motor Forward Control	I	—
J	2.5	BK	1550	Ground	I	—
K	1.5	BU / VT	287	Driver Seat Front Vertical Motor Down Control	I	—

S64P Front Seat Adjuster Switch - Passenger (A7K)

FIGURESIO=6217716 Owner=Owner, Schematics
LMD=26-Jan-2023



623046

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 35058909
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 280 GT Series(BK)

Terminal Part Information

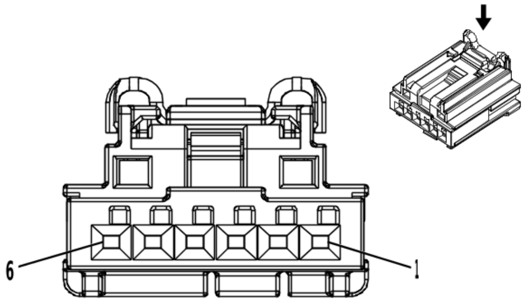
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

S64P Front Seat Adjuster Switch - Passenger (A7K)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	BU / WH	289	Passenger Seat Rear Vertical Motor Down Control	I	—
B	1.5	YE / BU	290	Passenger Seat Horizontal Motor Rearward Control	I	—
C	1.5	YE / WH	296	Passenger Seat Horizontal Motor Forward Control	I	—
D	1.5	BU / BN	77	Passenger Seat Recline Motor Rearward Control	I	—
E	2.5	BK	1350	Ground	I	—
F	1.5	GN / BU	298	Passenger Seat Front Vertical Motor Down Control	I	—
G	2.5	RD / GY	7440	Battery Positive Voltage	I	—
H	1.5	GN	76	Passenger Seat Recline Motor Forward Control	I	—
J	1.5	GN / WH	288	Passenger Seat Rear Vertical Motor Up Control	I	—
K	1.5	GN / VT	297	Passenger Seat Front Vertical Motor Up Control	I	—

S64P Front Seat Adjuster Switch - Passenger (AVU&(AHH/AKE))

FIGURESIO=6217717 Owner=Owner, Schematics LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 2035363-4
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

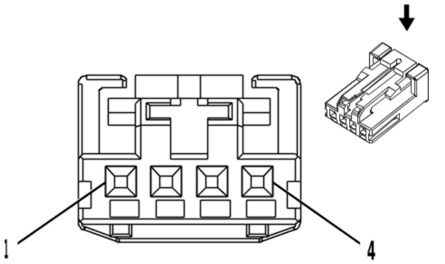
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S64P Front Seat Adjuster Switch - Passenger (AVU&(AHH/AKE))

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / BN	2240	Battery Positive Voltage	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	GN / YE	4116	Passenger Seat Adjuster Memory Module LIN Bus 2	I	—
4	0.5	BK	1350	Ground	I	—
5	0.5	GN / WH	2816	Passenger Seat Auxiliary Adjustment Switch Signal	I	—
6	0.5	BK / BN	2815	Auxiliary Passenger Seat Adjustment Switch Low Reference	I	—

S65D Front Seat Lumbar Switch - Driver (A45) FIGURESIO=6217718 Owner=Owner, Schematics LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 1-936119-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

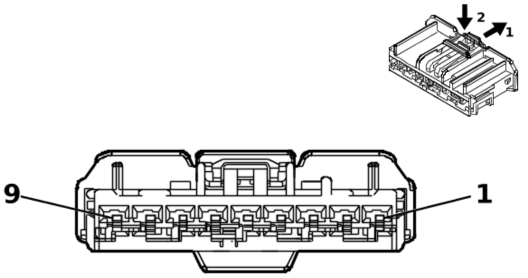
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S65D Front Seat Lumbar Switch - Driver (A45)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.5	BU / YE	2818	Driver Seat Auxiliary Adjustment Switch Signal	I	—
4	0.5	BK / VT	2817	Auxiliary Driver Seat Adjustment Switch Low Reference	I	—

S65D Front Seat Lumbar Switch - Driver (AVK)

FIGURESIO=6217719 Owner=Owner, Schematics LMD=26-Jan-2023



5204289

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver
OEM Connector: 7289-6875-40
Service Connector: Service by Harness - See Part Catalog
Description: 9-Way F 2.8 YESC Series(GY)

Terminal Part Information

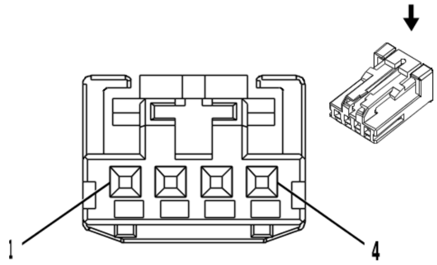
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

S65D Front Seat Lumbar Switch - Driver (AVK)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	1550	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.75	RD / BN	2240	Battery Positive Voltage	I	—
4	—	—	—	Not Occupied	—	—
5	0.75	BU	611	Driver Seat Lumbar Support Motor Forward Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.75	VT	610	Driver Seat Lumbar Support Motor Backward Control	I	—
8 - 9	—	—	—	Not Occupied	—	—

S65P Front Seat Lumbar Switch - Passenger (-(AKE/AVU))

FIGURESIO=6217720 Owner=Owner, Schematics
LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 1-936119-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

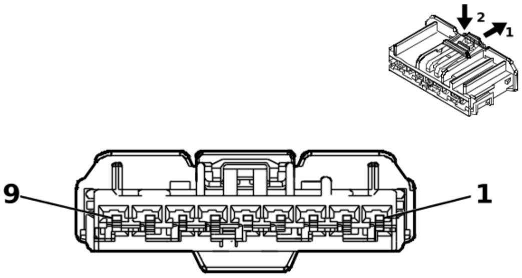
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S65P Front Seat Lumbar Switch - Passenger (-(AKE/AVU))

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.5	YE / GN	1068	Passenger Seat Lumbar Support Switch Analog Signal	I	—
4	0.5	BK / BU	2194	Passenger Seat Position Switch Low Reference	I	—

S65P Front Seat Lumbar Switch - Passenger (A7K-AVU)

FIGURESIO=6217721 Owner=Owner, Schematics
LMD=26-Jan-2023



5204289

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 7289-6875-40
Service Connector: Service by Harness - See Part Catalog
Description: 9-Way F 2.8 YESC Series(GY)

Terminal Part Information

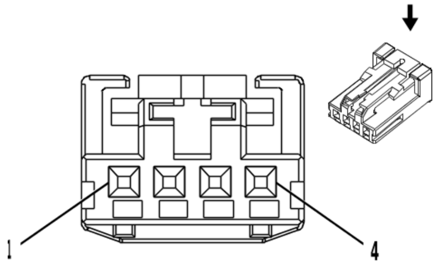
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

S65P Front Seat Lumbar Switch - Passenger (A7K-AVU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	1350	Ground	I	—
2	—	—	—	Not Occupied	—	—
3	0.75	RD / BN	2240	Battery Positive Voltage	I	—
4	—	—	—	Not Occupied	—	—
5	0.75	BU	211	Passenger Seat Lumbar Support Motor Forward Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.75	VT	210	Passenger Seat Lumbar Support Motor Backward Control	I	—
8 - 9	—	—	—	Not Occupied	—	—

S65P Front Seat Lumbar Switch - Passenger (AKE&AVU)

FIGURESIO=6217722 Owner=Owner, Schematics
LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger
OEM Connector: 1-936119-1
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

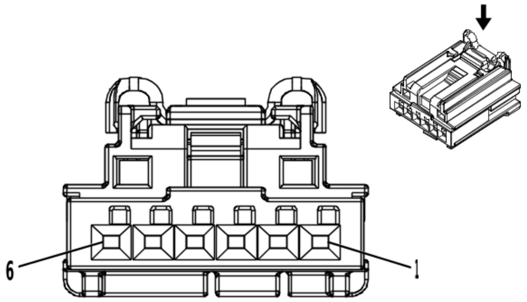
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S65P Front Seat Lumbar Switch - Passenger (AKE&AVU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	—	—	—	Not Occupied	—	—
3	0.5	GN / WH	2816	Passenger Seat Auxiliary Adjustment Switch Signal	I	—
4	0.5	BK / BN	2815	Auxiliary Passenger Seat Adjustment Switch Low Reference	I	—

S70E Radio Favorites Switch - Steering Wheel (UK3)

FIGURESIO=6258071 Owner=Owner, Schematics
LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Steering Wheel Horn Switch Wiring Harness
OEM Connector: 13583825
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

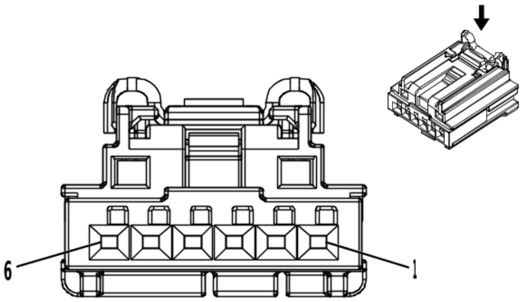
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S70E Radio Favorites Switch - Steering Wheel (UK3)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE / BK	6051	Steering Wheel Ground	I	—
2	0.35	WH / YE	4312	Radio Favorite Back Switch Signal	I	—
3	0.35	YE / YE	4313	Radio Favorite Forward Switch Signal	I	—
4	0.35	YE / BU	6855	Transmission Tap Down Switch Signal	I	—
5 - 6	—	—	—	Not Occupied	—	—

S70F Radio Volume Switch - Steering Wheel (UK3)

FIGURESIO=6258073 Owner=Owner, Schematics LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Steering Wheel Horn Switch Wiring Harness
OEM Connector: 13583825
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

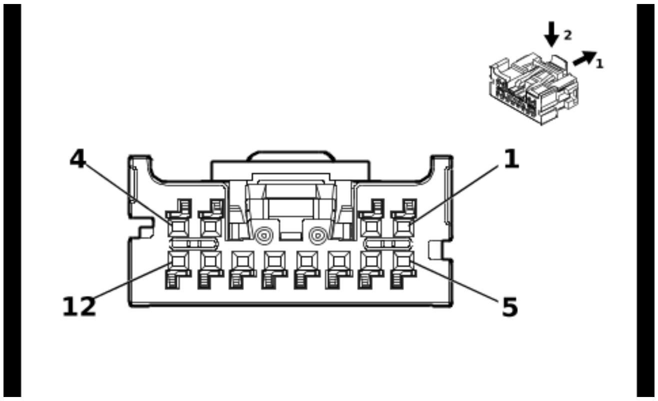
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S70F Radio Volume Switch - Steering Wheel (UK3)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK / WH	6051	Steering Wheel Ground	I	—
2	0.35	GY / BN	4314	Radio Volume Down Switch Signal	I	—
3	0.35	BU / BN	4315	Radio Volume Up Switch Signal	I	—
4	0.35	YE / BU	6855	Transmission Tap Down Switch Signal	I	—
5	0.35	VT / YE	5526	Tap Up/Tap Down Switch Signal	I	—
6	—	—	—	Not Occupied	—	—

S70L Cruise Control Switch (KI3)

FIGURESIO=6258075 Owner=Owner, Schematics LMD=26-Jan-2023



5823893

Connector Part Information

Harness Type: Steering Wheel Horn Switch Wiring Harness
OEM Connector: 13541203
Service Connector: Service by Harness - See Part Catalog
Description: 12-Way F Mini 50 Series(GY)

Terminal Part Information

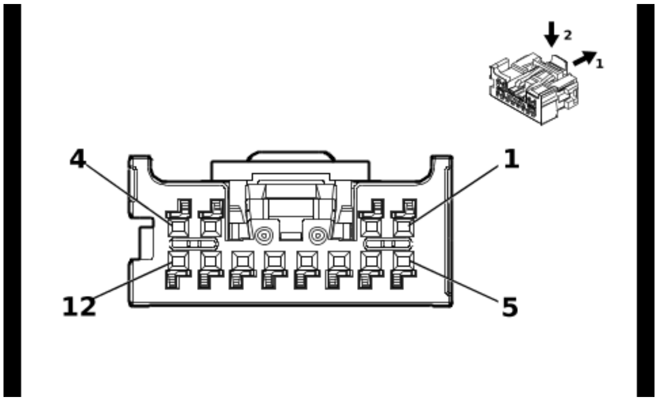
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

S70L Cruise Control Switch (KI3)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD / GN	5140	Battery Positive Voltage	I	—
2	0.35	YE / BK	3893	Steering Wheel LED Backlight Dimming Control	I	—
3	0.35	BN / GN	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal	I	—
4	0.35	GY / GN	5737	Distance Sensing Cruise Control Gap Up/Down Switch Signal	I	—
5	—	—	—	Not Occupied	—	—
6	0.35	BK / WH	6051	Steering Wheel Ground	I	—
7	0.35	BN / WH	5884	Steering Wheel Heating Switch LED Control	I	KI3
8	0.35	YE / GY	5883	Steering Wheel Heating Switch Signal	I	KI3
9	0.35	VT	3892	Indicator Dimming Control 2	I	—
10	0.35	BK / VT	1449	Steering Wheel Resistor Ladder Low Reference	I	—
11 - 12	—	—	—	Not Occupied	—	—

S70R Radio Control Switch - Steering Wheel (UK3)

FIGURESIO=6258077 Owner=Owner, Schematics LMD=26-Jan-2023



5911307

Connector Part Information

Harness Type: Steering Wheel Horn Switch Wiring Harness
OEM Connector: 13541204
Service Connector: Service by Harness - See Part Catalog
Description: 12-Way F Mini 50 Series(GY)

Terminal Part Information

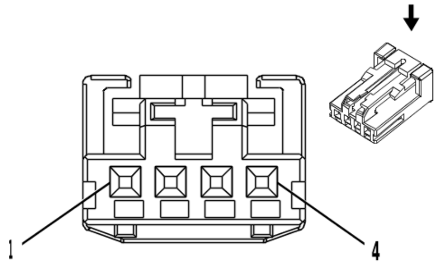
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

S70R Radio Control Switch - Steering Wheel (UK3)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN	5140	Battery Positive Voltage	I	—
2	0.35	YE / BK	3893	Steering Wheel LED Backlight Dimming Control	I	—
3	0.35	GN / BK	3894	Instrument Panel Cluster Control Module LIN Bus 1	I	—
4 - 5	—	—	—	Not Occupied	—	—
6	0.35	BK / WH	6051	Steering Wheel Ground	I	—
7	0.35	WH / YE	4313	Radio Favorite Forward Switch Signal	I	—
8	0.35	YE / BU	4312	Radio Favorite Back Switch Signal	I	—
9	0.35	VT	3892	Indicator Dimming Control 2	I	—
10	0.35	BU	4315	Radio Volume Up Switch Signal	I	—
11	0.35	GY / BN	4314	Radio Volume Down Switch Signal	I	—
12	—	—	—	Not Occupied	—	—

S76 Trailer Brake Control Switch (GFY/GFG/GFW/GA4)

FIGURESIO=6217724 Owner=Owner, Schematics
LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 13969166
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

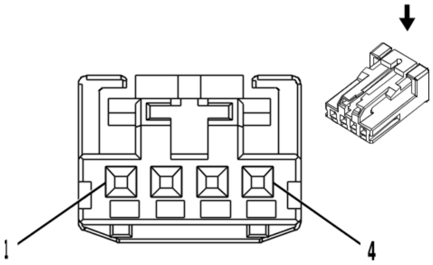
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S76 Trailer Brake Control Switch (GFY/GFG/GFW/GA4)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / YE	2340	Battery Positive Voltage	I	—
2	0.35	GN / BU	2733	Brake System Control Module LIN Bus 2	I	—
3	0.5	BK	1350	Ground	I	—
4	—	—	—	Not Occupied	—	—

S76 Trailer Brake Control Switch (- (GFY / GFG / GFW / GA4))

FIGURESIO=6258079 Owner=Owner, Schematics LMD=26-Jan-2023



2717162

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 13969166
Service Connector: 19367524
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

Terminal Part Information

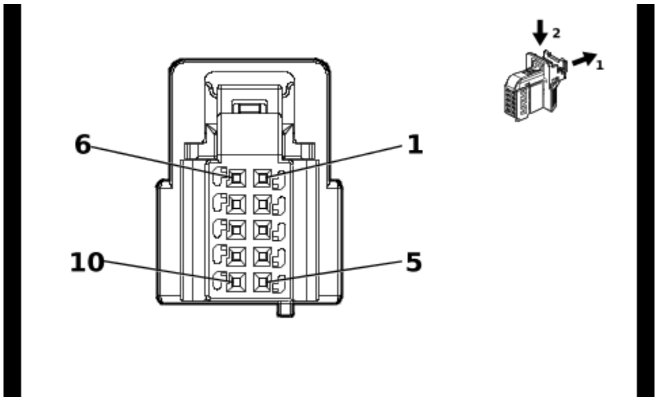
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S76 Trailer Brake Control Switch (- (GFY / GFG / GFW / GA4))

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / YE	2340	Battery Positive Voltage	I	—
2	0.35	GN / BU	2733	Brake System Control Module LIN Bus 2	I	—
3	0.5	BK	1050	Ground	I	—
4	—	—	—	Not Occupied	—	—

S78 Turn Signal Switch

FIGURESIO=6217725 Owner=Owner, Schematics LMD=26-Jan-2023



5838155

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35380960
Service Connector: 13518417
Description: 10-Way F 0.64 MQS Series(BK)

Terminal Part Information

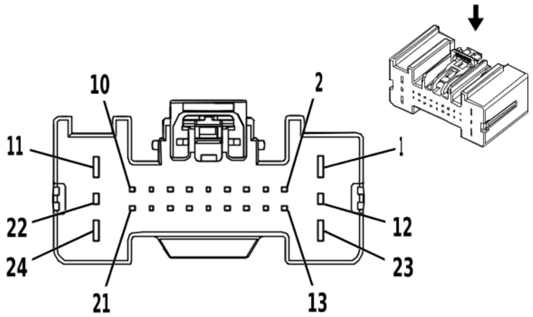
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300632	J-35616-64B (L-BU)	J-38125-215A

S78 Turn Signal Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH / GN	2915	Left Turn Signal Switch Signal	I	—
2	0.35	VT / BU	2916	Right Turn Signal Switch Signal	I	—
3	0.35	BK / WH	851	Signal Ground	I	—
4	0.35	GY / BN	3904	Auto High Beam Assist Switch Signal	I	—
5	0.35	WH / BK	94	Windshield Washer Switch Signal	I	—
6	0.35	YE / BN	307	Headlamp Switch Flash Signal	I	—
7	0.35	WH	524	High Beam Select Switch High Beam Signal	I	—
8	0.35	BK / GY	6009	Windshield Wiper Switch Low Reference	I	—
9	0.35	GY	1715	Windshield Wiper Switch High Signal	I	—
10	0.35	YE / BU	1714	Windshield Wiper Switch Low Signal	I	—

S79D Front Side Door Window Control Switch - Driver X1

FIGURESIO=6217726 Owner=Owner, Schematics
LMD=26-Jan-2023



2871905

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Left
OEM Connector: 13706537
Service Connector: Service by Harness - See Part Catalog
Description: 24-Way F 0.64 GEN-Y, 1.5, 2.8 YESC Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	Not required	J-35616-64B (L-BU)	No Tool Required

S79D Front Side Door Window Control Switch - Driver X1

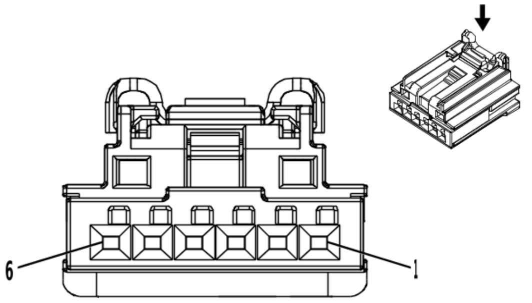
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5 0.5	WH / BN BN	2764 10201	Window Switch Left Front Down Signal Left Front Mirror Motor Extend Control	II II	AXG DZC
2	0.5	GN	2766	Power Window Switch Left Front Express Signal	III	—
3	0.5	BN / YE	2771	Left Front Door Lock Switch Lock Signal	III	—
4	0.5	BN / WH	2772	Left Front Door Lock Switch Unlock Signal	III	—
5	0.5	GY / VT	2767	LED Ambient Lighting Control Left Front Door	III	—
6	—	—	—	Not Occupied	—	—
7	0.5	BN / GY	4784	Left Front Door LED Backlight Dimming Control	III	—
8	0.35	GY / YE	1760	Left Side Object Detection LED Control	III	—
9	0.5	WH / GN	2786	Left Front Mirror Motor Fold In Control	III	—
10	0.5	YE / BN	2789	Left Front Mirror Motor Common Control	III	—
11	0.5	BK	1550	Ground	II	—
12	0.5	GY / WH	2785	Left Front Mirror Motor Fold Out Control	I	—
13	0.5	WH / BN	2764	Window Switch Left Front Down Signal	III	—
14 - 15	—	—	—	Not Occupied	—	—
16	0.5	GY / GN	2763	Window Switch Left Front Up Signal	III	—
17	0.5	WH / VT	4258	Left Front Door Lock Status Signal	III	—
18	0.5	VT / BU	2788	Left Front Mirror Motor Up [+] Down [-] Control	III	—

S79D Front Side Door Window Control Switch - Driver X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
19	0.5	BN / BK	2790	Left Front Mirror Motor Right [+] Left [-] Control	III	—
20	—	—	—	Not Occupied	—	—
21	0.5	GN / YE	6134	Body Control Module LIN Bus 3	III	—
22	0.5	WH	606	Left Outside Rearview Mirror Heater Control	I	—
23	0.5 0.5	GY / GN WH / BK	2763 10202	Window Switch Left Front Up Signal Left Front Mirror Motor Retract Control	II II	AXG DZC
24	0.5	RD / BU	1240	Battery Positive Voltage	II	—

S79D Front Side Door Window Control Switch - Driver X2

FIGURESIO=6217727 Owner=Owner, Schematics
LMD=26-Jan-2023



4145138

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Left
OEM Connector: 33251915
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

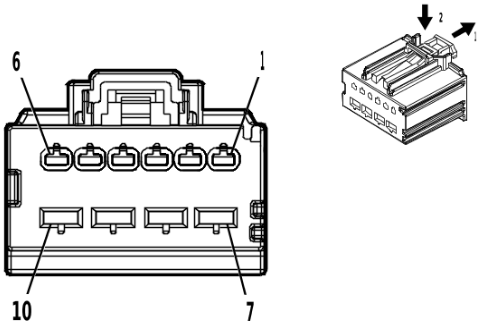
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S79D Front Side Door Window Control Switch - Driver X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH / YE	2792	Left Front Mirror Position Sensor Left [-] Right [+] Signal	I	—
2	0.5	GY / BN	2787	Left Front Mirror Position Sensor Up [+] Down [-] Signal	I	—
3	0.5	VT / RD	2791	Left Front Mirror Position Sensor High Reference	I	—
4	0.5	BK / BN	673	Left Outside Rearview Mirror Position Sensor Low Reference	I	—
5 - 6	—	—	—	Not Occupied	—	—

S79LR Rear Side Door Window Switch - Left

FIGURESIO=6217728 Owner=Owner, Schematics LMD=26-Jan-2023



5035058

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Left
OEM Connector: 35152553
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 1.5, 2.8 MX Series(BK)

Terminal Part Information

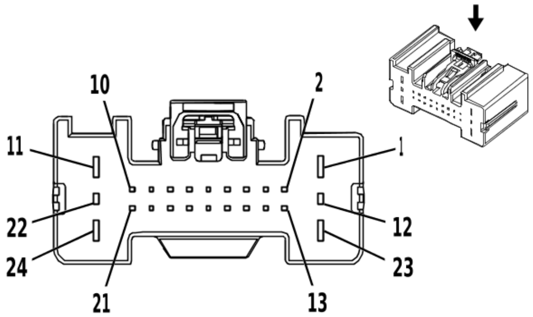
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required

S79LR Rear Side Door Window Switch - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / GY	6135	Body Control Module LIN Bus 4	I	—
2	0.5	GY	747	Left Rear Door Ajar Switch Signal	I	—
3	0.5	BK	1550	Ground	I	—
4 - 6	—	—	—	Not Occupied	—	—
7	2.5	BK	1550	Ground	II	—
8	2.5	RD / BU	3240	Battery Positive Voltage	II	—
9	2	BU / VT	668	Left Rear Window Motor Up Control	II	—
10	2	YE / BU	669	Left Rear Window Motor Down Control	II	—

S79P Front Side Door Window Switch - Passenger X1

FIGURESIO=6217729 Owner=Owner, Schematics
LMD=26-Jan-2023



2871905

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Right
OEM Connector: 13706537
Service Connector: Service by Harness - See Part Catalog
Description: 24-Way F 0.64 GEN-Y, 1.5, 2.8 YESC Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	Not required	J-35616-64B (L-BU)	No Tool Required

S79P Front Side Door Window Switch - Passenger X1

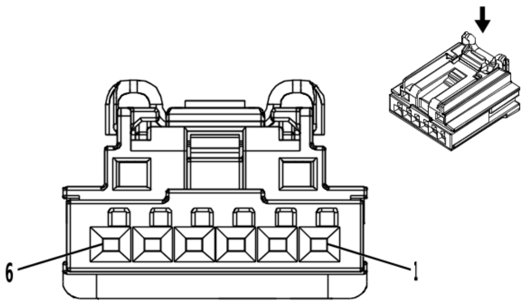
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1350	Ground	II	—
2	0.5	YE / RD	2799	Right Front Mirror Position Sensor High Reference	III	—
3	0.5	GN / BK	2798	Right Front Mirror Motor Right [+] Left [-] Control	III	—
4	0.5	YE / VT	2796	Right Front Mirror Motor Up [+] Down [-] Control	III	—
5	0.5	BN	5295	Window Switch Right Front Down Signal	III	—
6	—	—	—	Not Occupied	—	—
7	0.5	GY / VT	4638	LED Backlight Dimming Control Right Front Door	III	—
8	0.35	GY	1761	Right Side Object Detection LED Control	III	—
9	0.5	BU / GY	2794	Right Front Mirror Motor Fold In Control	III	—
10	0.5	YE / WH	2793	Right Front Mirror Motor Fold Out Control	III	—
11	2.5 0.5	GN / GY VT	666 10204	Right Front Window Motor Up Control Right Front Mirror Motor Retract Control	II II	AED+ AXG DZC
12	0.5	BN / VT	607	Right Outside Rearview Mirror Heater Control	I	—
13	0.5	GN	1184	Window Switch Right Front Up Signal	III	—
14	0.5	GN / YE	6134	Body Control Module LIN Bus 3	III	—
15	0.5	VT / WH	2800	Right Front Mirror Position Sensor Left [-] Right [+] Signal	III	—

S79P Front Side Door Window Switch - Passenger X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
16	0.5	BU / YE	2795	Right Front Mirror Position Sensor Up [+] Down [-] Signal	III	—
17	0.5	YE / VT	2773	Right Front Door Lock Switch Lock Control	III	—
18	0.5	BN / VT	2774	Right Front Door Lock Switch Unlock Control	III	—
19	—	—	—	Not Occupied	—	—
20	0.5 0.5	GY VT / GY	746 2765	Right Front Door Ajar Switch Signal Window Switch Right Front Express Signal	III III	AED AED+ AXG
21	0.5	WH	2797	Right Front Mirror Motor Common Control	III	—
22	0.5	BK / GN	675	Right Outside Rearview Mirror Position Sensor Low Reference	I	—
23	2.5	RD / BN	4240	Battery Positive Voltage	II	—
24	2.5 0.5	YE / BU BN / GN	667 10203	Right Front Window Motor Down Control Right Front Mirror Motor Extend Control	II II	AED+ AXG DZC

S79P Front Side Door Window Switch - Passenger X2

FIGURESIO=6217730 Owner=Owner, Schematics
LMD=26-Jan-2023



4145138

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Right
OEM Connector: 33251915
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

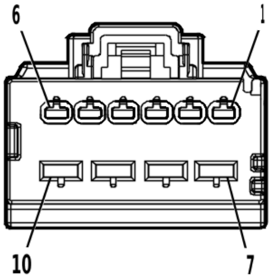
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

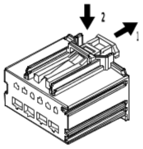
S79P Front Side Door Window Switch - Passenger X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.5	WH / BN	2768	LED Ambient Lighting Control Right Front Door	I	—
3 - 6	—	—	—	Not Occupied	—	—

S79RR Rear Side Door Window Switch - Right

FIGURESIO=6217731 Owner=Owner, Schematics LMD=26-Jan-2023





5035058

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Right
OEM Connector: 35152553
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 1.5, 2.8 MX Series(BK)

Terminal Part Information

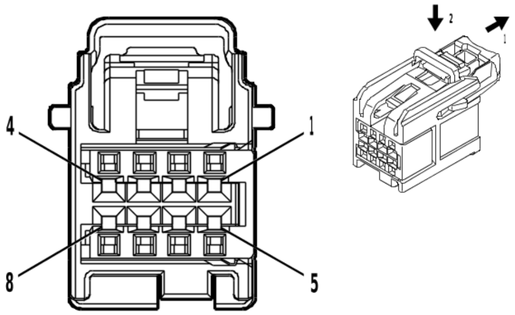
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required

S79RR Rear Side Door Window Switch - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / GY	6135	Body Control Module LIN Bus 4	I	—
2	0.5	GY	748	Right Rear Door Ajar Switch Signal	I	—
3 - 6	—	—	—	Not Occupied	—	—
7	2.5	BK	1350	Ground	II	—
8	2.5	YE / BK	4840	Battery Positive Voltage	II	—
9	2	BU / GY	670	Right Rear Window Motor Up Control	II	—
10	2	GN / BK	671	Right Rear Window Motor Down Control	II	—

S86 Vehicle Stability Control System Switch

FIGURESIO=6217732 Owner=Owner, Schematics LMD=26-Jan-2023



4935776

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 15526972
Service Connector: 19370429
Description: 8-Way F 0.64 OCS Series(BK)

Terminal Part Information

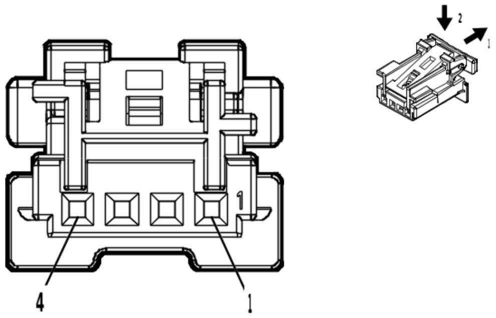
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S86 Vehicle Stability Control System Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / VT	1788	Traction Control Switch Signal 1	I	—
2	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.35	BN	7291	Major Endgate Release Switch Signal Interior	I	—
4	0.35	BU / YE	6844	ABS/Traction Control Hill Descent Control Switch Signal	I	—
5	—	—	—	Not Occupied	—	—
6	0.35	BK / WH	851	Signal Ground	I	—
7	0.35	GN / WH	111	Hazard Warning Switch Signal	I	—
8	0.35	GY	1198	Endgate Release Switch Analog Signal Interior	I	—

S91 Parking Brake Control Switch

FIGURESIO=6217733 Owner=Owner, Schematics LMD=26-Jan-2023



4997407

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35082250
Service Connector: 19371192
Description: 4-Way F 0.64 Micro-Quadlock Series(BK)

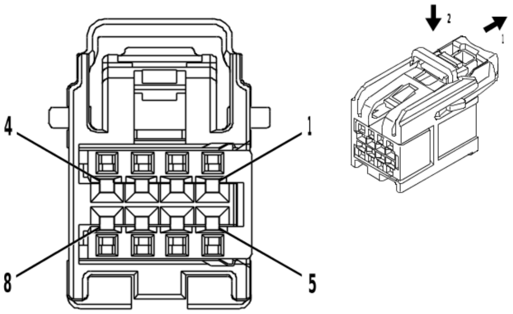
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S91 Parking Brake Control Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD / YE	4340	Battery Positive Voltage	I	—
2	0.5	GN / YE	2731	Brake System Control Module LIN Bus 1	I	—
3	—	—	—	Not Occupied	—	—
4	0.35	BK / WH	851	Signal Ground	I	—

S126 Ride Control Switch FIGURESIO=6217734 Owner=Owner, Schematics LMD=26-Jan-2023



4232228

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 15526973
Service Connector: 19353873
Description: 8-Way F 0.64 OCS Series(GY)

Terminal Part Information

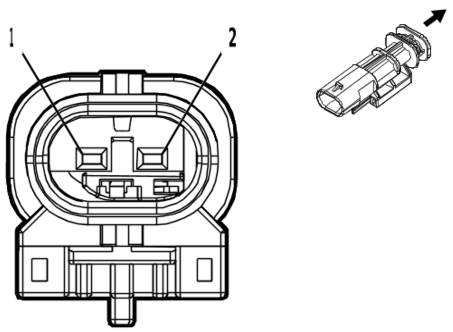
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S126 Ride Control Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH / BN	2203	Enhanced Driver Mode 2 Switch Signal	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	BK / GY	2204	Enhanced Driver Mode 1 Switch Low Reference	I	—
4	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
5	0.35	BK / WH	851	Signal Ground	I	—
6 - 8	—	—	—	Not Occupied	—	—

S158 Liftgate Exterior Release Switch - Auxiliary Endgate (QK2)

FIGURESIO=6217735 Owner=Owner, Schematics LMD=26-Jan-2023



4994410

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 35235497
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series, Sealed(GY)

Terminal Part Information

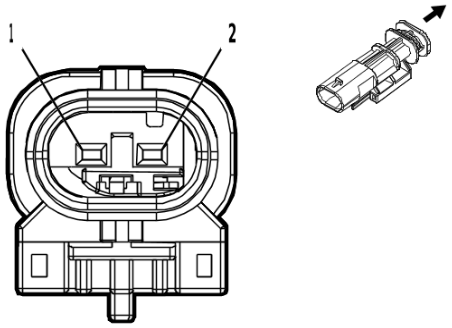
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

S158 Liftgate Exterior Release Switch - Auxiliary Endgate (QK2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	7294	Minor Endgate Release Switch Discrete Signal Exterior	I	—
2	0.5	BK	1850	Ground	I	—

S159E Liftgate Exterior Release Switch - Endgate (QK1)

FIGURESIO=6217736 Owner=Owner, Schematics
LMD=26-Jan-2023



4994411

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 35068608
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series, Sealed(GY)

Terminal Part Information

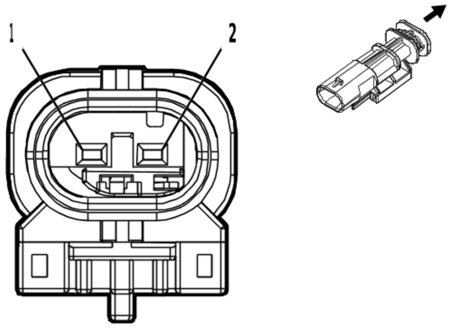
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

S159E Liftgate Exterior Release Switch - Endgate (QK1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5 0.5	YE GY	1144 7292	Endgate Release Switch Discrete Signal Exterior Major Endgate Release Switch Signal Exterior	I I	QK1+ QT6 QT5
2	0.5	BK	1850	Ground	I	—

S159E Liftgate Exterior Release Switch - Endgate (QK2)

FIGURESIO=6217737 Owner=Owner, Schematics
LMD=26-Jan-2023



4994411

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 35068608
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series, Sealed(GY)

Terminal Part Information

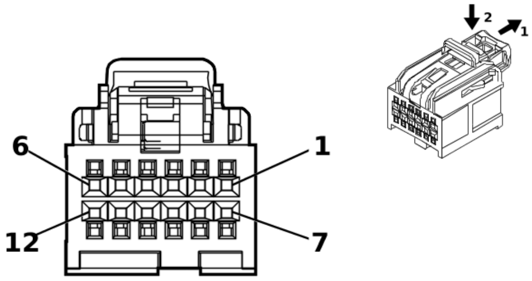
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-13 (L-BU)	No Tool Required

S159E Liftgate Exterior Release Switch - Endgate (QK2)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY	7292	Major Endgate Release Switch Signal Exterior	I	—
2	0.5	BK	1850	Ground	I	—

S171L Instrument Panel Center Accessory Function Switch - Left

FIGURESIO=6217738 Owner=Owner, Schematics LMD=26-Jan-2023



4975223

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35016616
Service Connector: 13519750
Description: 12-Way F 0.64 OCS Series(BK)

Terminal Part Information

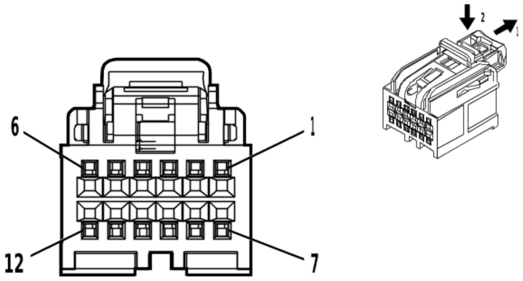
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300660	J-35616-64B (L-BU)	J-38125-215A

S171L Instrument Panel Center Accessory Function Switch - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY / GN	2555	Rear Parking Assist Disable Signal	I	—
2	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.35	BU / WH	3119	Roof Rail Air Bag Disable Switch Signal	I	—
4	0.35	GY / WH	3153	Lane Departure Warning Disable Switch Signal	I	—
5	0.35	WH	3152	Lane Departure Warning Indicator Control	I	—
6	0.35	BU / YE	6844	ABS/Traction Control Hill Descent Control Switch Signal	I	—
7	—	—	—	Not Occupied	—	—
8	0.35	GN / BN	5852	Rear Parking Assist Disable LED Signal	I	—
9	0.35	BK / WH	851	Signal Ground	I	—
10	0.35	BN / WH	3895	Roof Rail Air Bag Disable Switch Low Reference	I	—
11	0.35	YE / BU	2912	Driver Mode 2 Indicator Control	I	—
12	0.35	GY	4989	Driver Mode 2 Switch Signal	I	—

S171R Instrument Panel Center Accessory Function Switch - Right

FIGURESIO=6217739 Owner=Owner, Schematics LMD=26-Jan-2023



4997362

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35016613
Service Connector: 13519752
Description: 12-Way F 0.64 OCS Series(BN)

Terminal Part Information

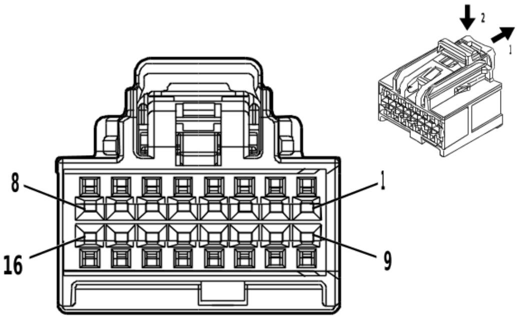
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300660	J-35616-64B (L-BU)	J-38125-215A

S171R Instrument Panel Center Accessory Function Switch - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.35	BU / YE	6844	ABS/Traction Control Hill Descent Control Switch Signal	I	—
4	0.35 0.35	YE / GN VT / BK	7122 339	Axle Differential Lock Switch Signal Run/Crank Ignition 1 Voltage	I I	G94 PTO
5	0.35 0.35	YE BN / GN	7115 4311	Rear Axle Differential Lock Indicator Control Power Take-Off Enable Cabin Switch Normally Closed Signal	I I	G94 PTO
6	—	—	—	Not Occupied	—	—
7	0.35	GN / WH	488	Power Take-Off Control Switch Signal	I	—
8	0.35	BU / YE	7176	All Windows Open Switch Signal	I	—
9	0.35	BK / WH	851	Signal Ground	I	—
10	0.35	WH	6816	Indicator Dimming Control	I	—
11	—	—	—	Not Occupied	—	—
12	0.35	BU / GY	4990	Driver Mode 1 Switch Signal	I	—

S172 Auxiliary Multifunction Switch

FIGURESIO=6217740 Owner=Owner, Schematics LMD=26-Jan-2023



4873243

Connector Part Information

Harness Type: Auxiliary Fuse Block Wiring Harness
OEM Connector: 35016343
Service Connector: Service by Harness - See Part Catalog
Description: 16-Way F 0.64 OCS Series(BK)

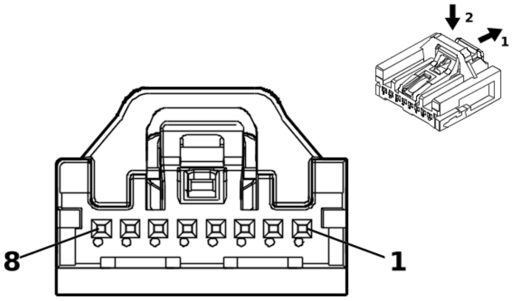
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

S172 Auxiliary Multifunction Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.35	WH	6816	Indicator Dimming Control	I	—
4 - 5	—	—	—	Not Occupied	—	—
6	0.35	BU / WH	10716	Upfitter Accessory Relay 1 Coil Control	I	—
7	0.35	VT / GY	10717	Upfitter Accessory Relay 2 Coil Control	I	—
8	0.35	GN / BN	10718	Upfitter Accessory Relay 3 Coil Control	I	—
9	0.35	WH / YE	10719	Upfitter Accessory Relay 4 Coil Control	I	—
10	0.35	GY / VT	10720	Upfitter Accessory Relay 5 Coil Control	I	—
11	—	—	—	Not Occupied	—	—
12	0.75	BK / WH	851	Signal Ground	I	—
13 - 16	—	—	—	Not Occupied	—	—

S192 Radio Function Switch (IOR) FIGURESIO=6217741 Owner=Owner, Schematics LMD=26-Jan-2023



5200269

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35068228
Service Connector: 84769201
Description: 8-Way F Mini 50 Series(BK)

Terminal Part Information

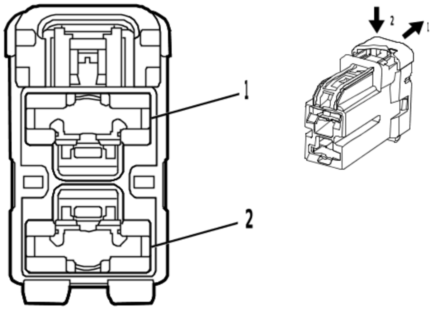
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	EL-35616-58 (BK)	No Tool Required

S192 Radio Function Switch (IOR)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE / RD	11236	Radio Switch 5 Volt Reference	I	—
2	0.35	BK / BU	11237	Radio Switch Low Reference 1	I	—
3	0.35	BN / WH	11233	Radio Switch Power ON/OFF Switch Signal	I	—
4	0.35	BK / GN	11238	Radio Switch Low Reference 2	I	—
5	0.35	BU / GY	11244	Radio Switch Dimming Control	I	—
6	0.35	VT / WH	11245	Radio Switch Buttons Signal	I	—
7	0.35	BU	11235	Radio Switch Volume Up Signal	I	—
8	0.35	GY / BN	11234	Radio Switch Volume Down Signal	I	—

T1 DC/AC Converter Control Module X1

FIGURESIO=6217742 Owner=Owner, Schematics LMD=26-Jan-2023



2453116

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 13581928
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 9.5 Series(BK)

Terminal Part Information

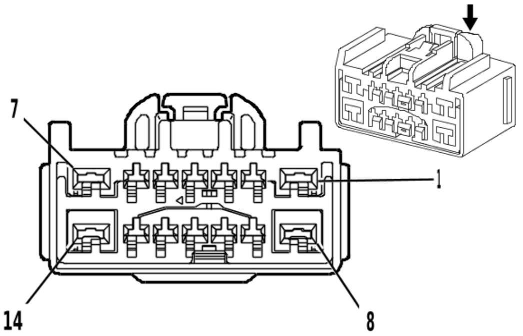
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-22 (RD)	No Tool Required

T1 DC/AC Converter Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	5	BN / BK	4629	DC/AC Inverter Control	I	—
2	5	BK	1550	Ground	I	—

T1 DC/AC Converter Control Module X2

FIGURESIO=6217743 Owner=Owner, Schematics LMD=26-Jan-2023



1540775

Connector Part Information

Harness Type: Body Rear Wiring Harness Extension Harness
OEM Connector: 33356826
Service Connector: Service by Harness - See Part Catalog
Description: 14-Way F 1.5, 2.8 YESC Series(BU)

Terminal Part Information

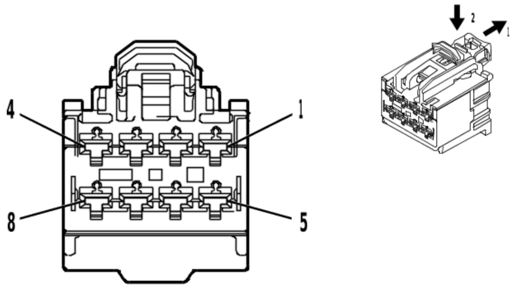
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required

T1 DC/AC Converter Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	II	—
2	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
3	0.35	VT / WH	239	Run/Crank Ignition 1 Voltage	I	—
4	0.5	WH / GN	4628	DC/AC Inverter Relay Control	I	—
5	0.5	BU / BN	6807	DC/AC Inverter Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.75	BK / WH	10120	AC Outlet 2 Phase A Control	II	—
8	0.75	RD	10118	AC Outlet Phase B Control	II	—
9	0.35	BARE	10116	AC Outlet Low Reference	I	—
10	0.5	GN / BU	6133	Body Control Module LIN Bus 2	I	—
11	—	—	—	Not Occupied	—	—
12	0.5	GN / BN	2266	DC/AC Inverter Control 2	I	—
13	0.35	BARE	10119	AC Outlet 2 Low Reference	I	—
14	0.75	RD / WH	10121	AC Outlet 2 Phase B Control	II	—

T3 Audio Amplifier X1

FIGURESIO=6217744 Owner=Owner, Schematics LMD=26-Jan-2023



4875738

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 33223792
Service Connector: 19369366
Description: 8-Way F 2.8 OCS Series(BK)

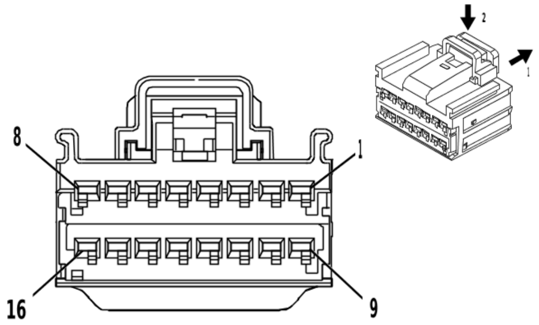
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required

T3 Audio Amplifier X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BU / GY	346	Left/Rear Subwoofer [+] Control	I	—
2	0.75	YE	200	Right Front Speaker 1 [+] Control	I	—
3	0.75	BU	201	Left Front Speaker 1 [+] Control	I	—
4	2.5	RD / YE	3740	Battery Positive Voltage	I	—
5	2.5	GN / BK	1794	Left/Rear Subwoofer [-] Control	I	—
6	0.75	YE / BK	117	Right Front Speaker [-] Control 1	I	—
7	0.75	BN / BU	118	Left Front Speaker [-] Control 1	I	—
8	2.5	BK / WH	1051	Signal Ground	I	—

T3 Audio Amplifier X2 FIGURESIO=6217745 Owner=Owner, Schematics LMD=26-Jan-2023



4332214

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 15512506
Service Connector: 13591061
Description: 16-Way F 1.5 OCS Series(BK)

Terminal Part Information

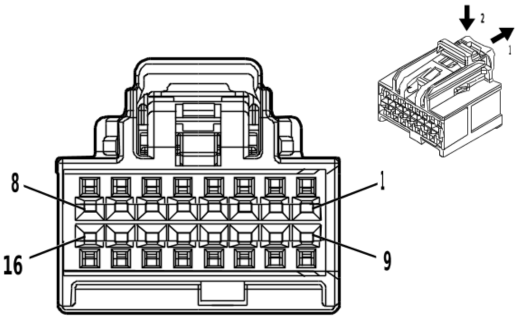
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	84757974	J-35616-2A (GY)	J-38125-215A

T3 Audio Amplifier X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	—	Not Occupied	—	—
2	0.75	BN / BK	1953	Right Front Midrange Speaker [-] Control	I	—
3	0.75	BU / VT	1857	Left Front Midrange Speaker [+] Control	I	—
4	1.5	WH	46	Right Rear Speaker [+] Control	I	—
5	1.5	GN	199	Left Rear Speaker [+] Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.75	YE / WH	1860	Front Center Speaker [+] Control	I	—
8 - 9	—	—	—	Not Occupied	—	—
10	0.75	WH / YE	1853	Right Front Midrange Speaker [+] Control	I	—
11	0.75	BU / BN	1957	Left Front Midrange Speaker [-] Control	I	—
12	1.5	BU / BK	115	Right Rear Speaker [-] Control	I	—
13	1.5	GN / BK	116	Left Rear Speaker [-] Control	I	—
14	—	—	—	Not Occupied	—	—
15	0.75	BU / YE	1960	Front Center Speaker [-] Control	I	—
16	—	—	—	Not Occupied	—	—

T3 Audio Amplifier X3

FIGURESIO=6217746 Owner=Owner, Schematics LMD=26-Jan-2023



4873243

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35016343
Service Connector: 13519738
Description: 16-Way F 0.64 OCS Series(BK)

Terminal Part Information

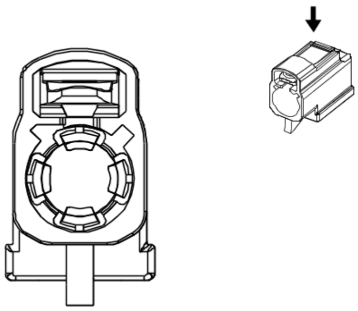
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19354230	J-35616-64B (L-BU)	J-38125-215A
II	Service by Cable	No Tool Required	No Tool Required

T3 Audio Amplifier X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	7215	Ethernet Bus 6 [+]	II	—
2	0.35	GN	7214	Ethernet Bus 6 [-]	II	—
3 - 4	—	—	—	Not Occupied	—	—
5	0.35	GN / BN	3005	Active Noise Cancellation Microphone 1 Signal	II	—
6 - 10	—	—	—	Not Occupied	—	—
11	0.5	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
12	0.5	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
13	0.35	GN / BK	3008	Active Noise Cancellation Microphone 1 Feedback Signal	II	—
14 - 16	—	—	—	Not Occupied	—	—

T4M Radio Antenna

FIGURESIO=6258081 Owner=Owner, Schematics LMD=26-Jan-2023



3214010

Connector Part Information

Harness Type: Radio Antenna Cable Extension Cable COAX
OEM Connector: 12784301
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BK)

Terminal Part Information

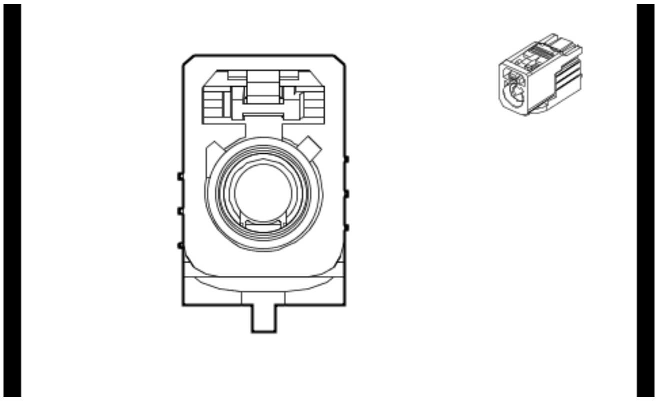
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

T4M Radio Antenna

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	(AM/FM) Antenna RF Signal	I	—

T4P High Frequency Antenna X1 (IOK - UE1)

FIGURESIO=6258083 Owner=Owner, Schematics LMD=26-Jan-2023



5633890

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33351013
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BU)

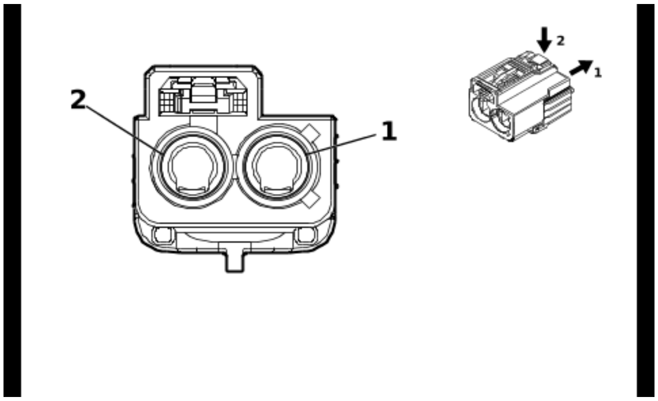
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

T4P High Frequency Antenna X1 (IOK - UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	(GPS only) Coaxial Antenna GPS Signal	I	—

T4P High Frequency Antenna X1 (UE1) FIGURESIO=6258085 Owner=Owner, Schematics LMD=26-Jan-2023



5661671

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 33351060
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 2-Way F Coax Type(VT)

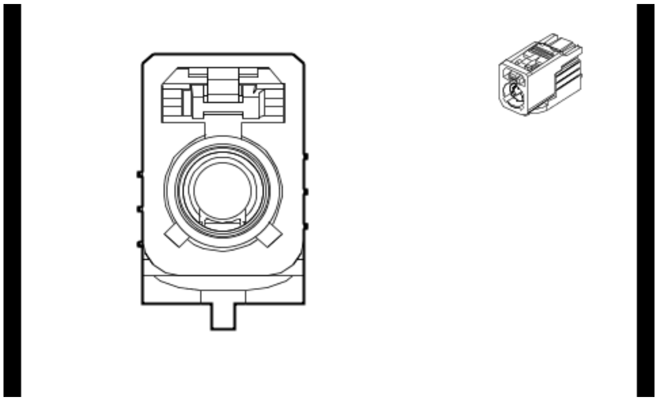
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

T4P High Frequency Antenna X1 (UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	—	3134	Coaxial Antenna Cell/GPS Combined Signal	I	—
2	—	—	6449	Coaxial Antenna Cell Phone Signal	I	—

T4P High Frequency Antenna X2 (IOK & U2K) FIGURESIO=6258087 Owner=Owner, Schematics LMD=26-Jan-2023



5661657

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33351022
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(YE)

Terminal Part Information

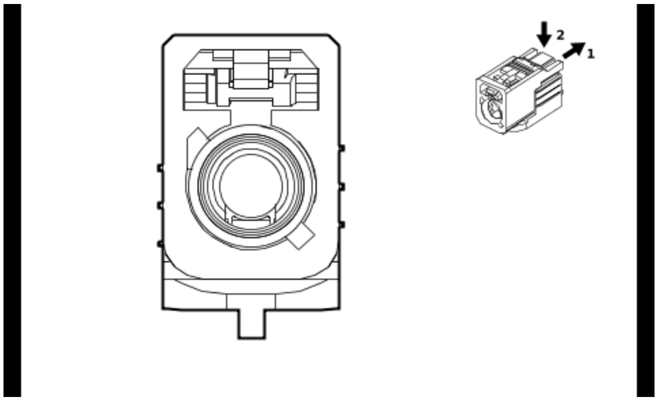
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

T4P High Frequency Antenna X2 (IOK & U2K)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	WiFi Antenna Coaxial Signal	I	—

T4TA Auxiliary Wireless Communication Interface Antenna

FIGURESIO=6217750 Owner=Owner, Schematics
LMD=26-Jan-2023



5518436

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX
OEM Connector: 33351021
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BG)

Terminal Part Information

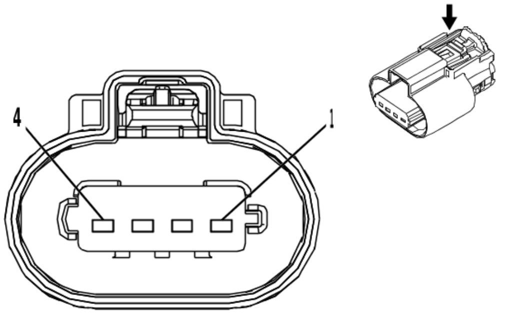
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

T4TA Auxiliary Wireless Communication Interface Antenna

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	WiFi Antenna Coaxial Signal	I	—

T8A Ignition Coil 1 (L8T)

FIGURESIO=6217751 Owner=Owner, Schematics LMD=26-Jan-2023



3240115

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13863211
Service Connector: 19367596
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

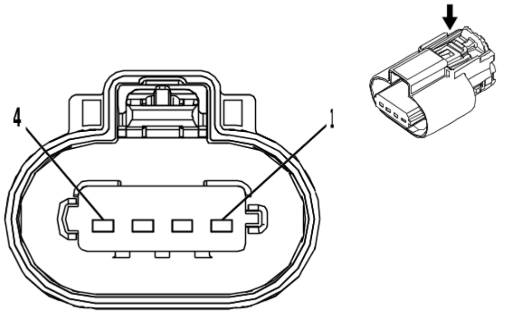
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

T8A Ignition Coil 1 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	6150	Engine Odd Bank Ground	I	—
2	0.5	BK / BU	2129	Ignition Control Low Reference Bank 1	I	—
3	0.5	BU / VT	2121	Ignition Control 1	I	—
4	0.75	VT / BU	5291	Powertrain Main Relay Fused Supply Voltage 2	I	—

T8B Ignition Coil 2 (L8T)

FIGURESIO=6217752 Owner=Owner, Schematics LMD=26-Jan-2023



3240115

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13863211
Service Connector: 19367596
Description: 4-Way F 1.5 MX Series, Sealed(BK)

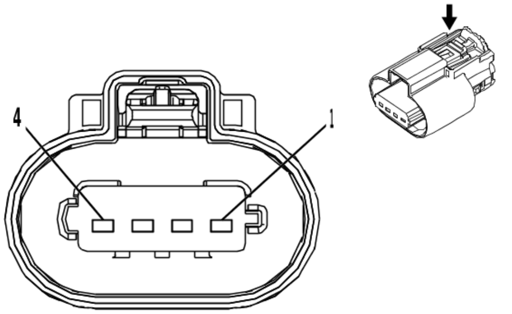
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

T8B Ignition Coil 2 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	6450	Engine Even Bank Ground	I	—
2	0.5	BK / GY	2130	Ignition Control Low Reference Bank 2	I	—
3	0.5	BU / WH	2122	Ignition Control 2	I	—
4	0.75	VT / BU	5292	Powertrain Main Relay Fused Supply Voltage 3	I	—

T8C Ignition Coil 3 (L8T) FIGURESIO=6217753 Owner=Owner, Schematics LMD=26-Jan-2023



3240115

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13863211
Service Connector: 19367596
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

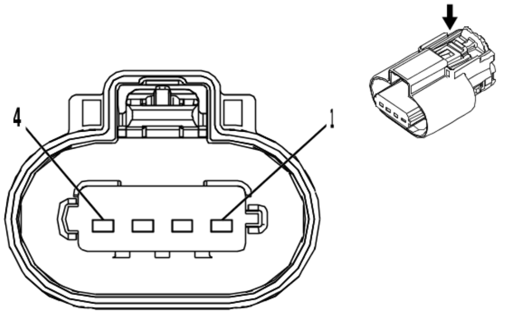
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

T8C Ignition Coil 3 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	6150	Engine Odd Bank Ground	I	—
2	0.5	BK / BU	2129	Ignition Control Low Reference Bank 1	I	—
3	0.5	GN / BU	2123	Ignition Control 3	I	—
4	0.75	VT / BU	5291	Powertrain Main Relay Fused Supply Voltage 2	I	—

T8D Ignition Coil 4 (L8T)

FIGURESIO=6217754 Owner=Owner, Schematics LMD=26-Jan-2023



3240115

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13863211
Service Connector: 19367596
Description: 4-Way F 1.5 MX Series, Sealed(BK)

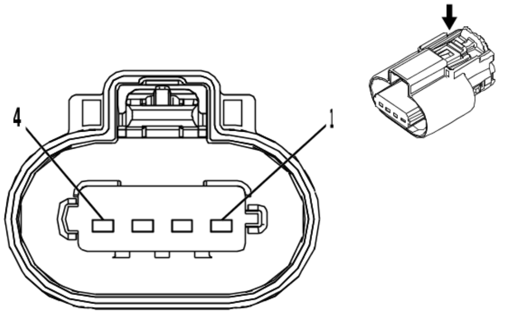
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

T8D Ignition Coil 4 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	6450	Engine Even Bank Ground	I	—
2	0.5	BK / GY	2130	Ignition Control Low Reference Bank 2	I	—
3	0.5	YE / BU	2124	Ignition Control 4	I	—
4	0.75	VT / BU	5292	Powertrain Main Relay Fused Supply Voltage 3	I	—

T8E Ignition Coil 5 (L8T) FIGURESIO=6217755 Owner=Owner, Schematics LMD=26-Jan-2023



3240115

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13863211
Service Connector: 19367596
Description: 4-Way F 1.5 MX Series, Sealed(BK)

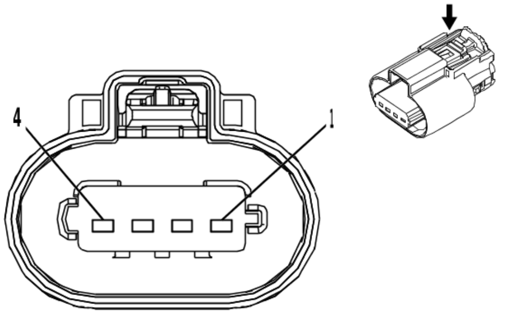
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

T8E Ignition Coil 5 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	6150	Engine Odd Bank Ground	I	—
2	0.5	BK / BU	2129	Ignition Control Low Reference Bank 1	I	—
3	0.5	BU / GY	2125	Ignition Control 5	I	—
4	0.75	VT / BU	5291	Powertrain Main Relay Fused Supply Voltage 2	I	—

T8F Ignition Coil 6 (L8T) FIGURESIO=6217756 Owner=Owner, Schematics LMD=26-Jan-2023



3240115

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13863211
Service Connector: 19367596
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

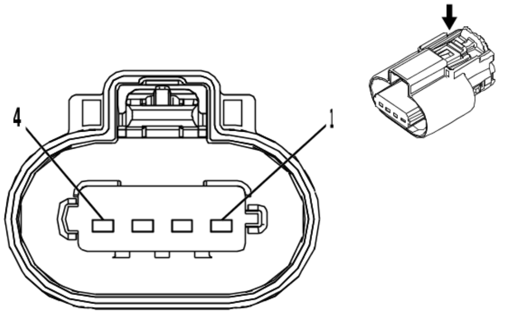
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

T8F Ignition Coil 6 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	6450	Engine Even Bank Ground	I	—
2	0.5	BK / GY	2130	Ignition Control Low Reference Bank 2	I	—
3	0.5	BN / BU	2126	Ignition Control 6	I	—
4	0.75	VT / BU	5292	Powertrain Main Relay Fused Supply Voltage 3	I	—

T8G Ignition Coil 7 (L8T)

FIGURESIO=6217757 Owner=Owner, Schematics LMD=26-Jan-2023



3240115

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13863211
Service Connector: 19367596
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

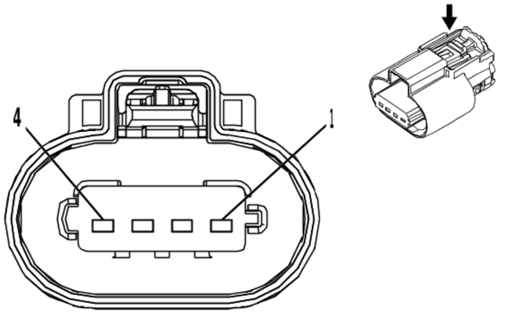
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

T8G Ignition Coil 7 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	6150	Engine Odd Bank Ground	I	—
2	0.5	BK / BU	2129	Ignition Control Low Reference Bank 1	I	—
3	0.5	GN / GY	2127	Ignition Control 7	I	—
4	0.75	VT / BU	5291	Powertrain Main Relay Fused Supply Voltage 2	I	—

T8H Ignition Coil 8 (L8T)

FIGURESIO=6217758 Owner=Owner, Schematics LMD=26-Jan-2023



3240115

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13863211
Service Connector: 19367596
Description: 4-Way F 1.5 MX Series, Sealed(BK)

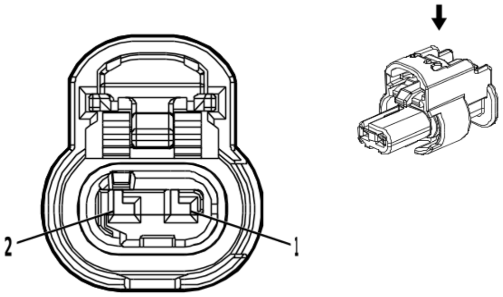
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required

T8H Ignition Coil 8 (L8T)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	6450	Engine Even Bank Ground	I	—
2	0.5	BK / GY	2130	Ignition Control Low Reference Bank 2	I	—
3	0.5	VT / WH	2128	Ignition Control 8	I	—
4	0.75	VT / BU	5292	Powertrain Main Relay Fused Supply Voltage 3	I	—

T10G Low Frequency Rear Bumper Antenna FIGURESIO=6217759 Owner=Owner, Schematics LMD=26-Jan-2023



4690744

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33375932
Service Connector: 19366871
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

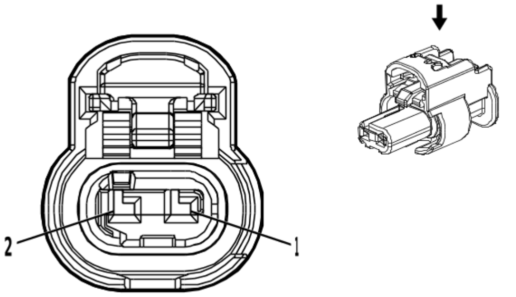
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

T10G Low Frequency Rear Bumper Antenna

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / GN	3568	Rear Closure Passive Entry Antenna High Signal	I	—
2	0.5	GN / GY	3569	Rear Closure Passive Entry Antenna Low Signal	I	—

T10J Low Frequency Instrument Panel Antenna FIGURESIO=6217760 Owner=Owner, Schematics LMD=26-Jan-2023



4690744

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 33375932
Service Connector: 19366871
Description: 2-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

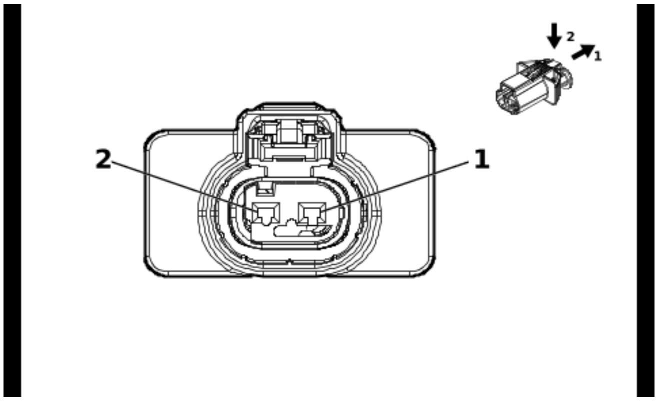
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

T10J Low Frequency Instrument Panel Antenna

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN / BK	3552	Interior Passive Entry Antenna 1 High Signal	I	—
2	0.35	WH	3553	Interior Passive Entry Antenna 1 Low Signal	I	—

T10KA Low Frequency Console Number 2 Antenna

FIGURESIO=6217761 Owner=Owner, Schematics
LMD=26-Jan-2023



6168540

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 13533498
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MLK Series, Sealed(BK)

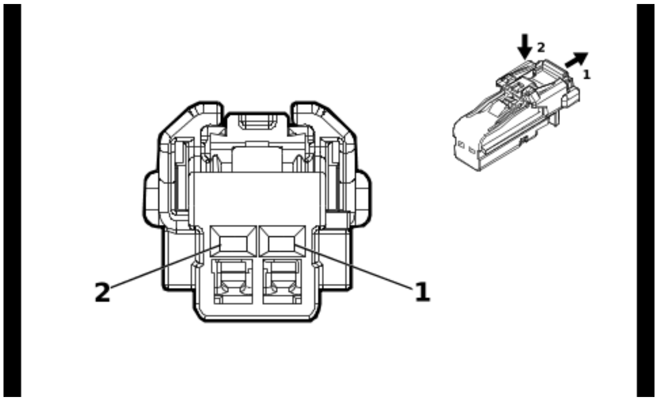
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

T10KA Low Frequency Console Number 2 Antenna

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN / BK	3552	Interior Passive Entry Antenna 1 High Signal	I	—
2	0.35	WH	3553	Interior Passive Entry Antenna 1 Low Signal	I	—

T10UA Low Frequency Console Antenna (AZ3) FIGURESIO=6217762 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Seat Wiring Harness - Center
OEM Connector: 6098-8988
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

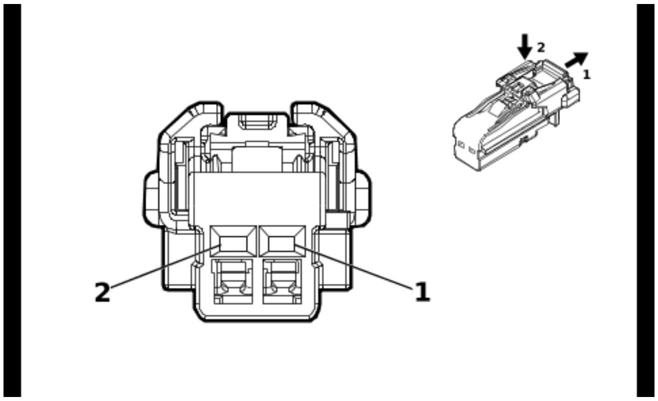
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

T10UA Low Frequency Console Antenna (AZ3)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / BK	4996	Immobilizer Antenna Signal [+]	I	—
2	0.5	WH / GY	4997	Immobilizer Antenna Low Signal	I	—

T10UA Low Frequency Console Antenna (D07)

FIGURESIO=6217763 Owner=Owner, Schematics LMD=26-Jan-2023



4115691

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 35311666
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(BK)

Terminal Part Information

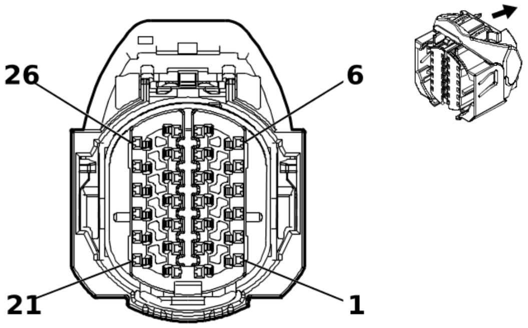
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

T10UA Low Frequency Console Antenna (D07)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN / BK	4996	Immobilizer Antenna Signal [+]	I	—
2	0.35	WH / GY	4997	Immobilizer Antenna Low Signal	I	—

T12 Automatic Transmission X1 (L5P)

FIGURESIO=6217764 Owner=Owner, Schematics LMD=26-Jan-2023



5275597

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35345999
Service Connector: 13528029
Description: 26-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19331733	J-35616-12 (L-BU)	J-38125-215A

T12 Automatic Transmission X1 (L5P)

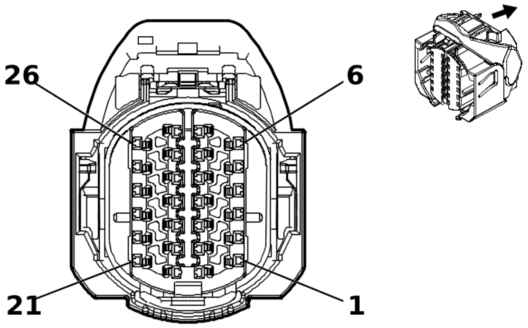
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / YE	6353	Input Speed Signal	I	—
2	0.5	GN / VT	4510	Transmission Intermediate Speed Signal	I	—
3	0.5	BN / WH	6254	Transmission Input Speed Sensor Signal	I	—
4	0.5	GY / BU	6358	Output Speed Signal	I	—
5	0.5	BU / WH	3338	Transmission Internal Mode Switch Mode Control X	I	—
6	0.5	GN / YE	3337	Transmission Internal Mode Switch Mode Control Y	I	—
7	0.5	YE / GN	4170	Transmission Output Shaft Speed Sensor Circuit 9V Reference	I	—
8	0.5	YE / BU	4171	Transmission Input Shaft Speed Sensor Circuit 9V Reference	I	—
9	0.5	GY / BN	6388	Transmission High Side Driver 2 Control	I	—
10	—	—	—	Not Occupied	—	—
11	0.5	GN / GY	6387	Transmission High Side Driver 1 Control	I	—
12	0.5	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—
13	0.5	BN / WH	585	Transmission Fluid Temperature Sensor Signal	I	—
14	0.5	YE / BN	6404	Clutch Solenoid Valve E Control	I	—
15	0.5	GY / GN	6403	Clutch Solenoid Valve D Control	I	—
16	0.5	GY	6402	Clutch Solenoid Valve C Control	I	—
17 - 18	—	—	—	Not Occupied	—	—

T12 Automatic Transmission X1 (L5P) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
19	0.5	GN / BK	7819	Default Disable Solenoid Control	I	—
20	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—
21	0.5	VT	4509	Transmission Clutch F Control	I	—
22	0.5	WH / BU	4507	Transmission Clutch H Control	I	—
23	0.5	WH	4508	Transmission Clutch G Control	I	—
24	0.5	GN / WH	1530	Transmission Line Pressure Control Solenoid Valve Control	I	—
25	0.5	VT / WH	422	Torque Converter Clutch Solenoid Valve Control	I	—
26	0.5	BK / BN	586	Transmission Fluid Temperature Sensor Low Reference	I	—

T12 Automatic Transmission X1 (L8T)

FIGURESIO=6217765 Owner=Owner, Schematics LMD=26-Jan-2023



5275597

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35345999
Service Connector: 13528029
Description: 26-Way F 1.2 MCON Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19331733	J-35616-12 (L-BU)	J-38125-215A

T12 Automatic Transmission X1 (L8T)

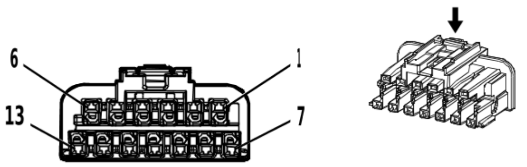
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN / YE	6353	Input Speed Signal	I	—
2	0.5	GN / VT	4510	Transmission Intermediate Speed Signal	I	—
3	0.5	BN / WH	6254	Transmission Input Speed Sensor Signal	I	—
4	0.5	GY / BU	6358	Output Speed Signal	I	—
5	0.5	BU / WH	3338	Transmission Internal Mode Switch Mode Control X	I	—
6	0.5	GN / YE	3337	Transmission Internal Mode Switch Mode Control Y	I	—
7	0.5	YE / GN	4170	Transmission Output Shaft Speed Sensor Circuit 9V Reference	I	—
8	0.5	YE / BU	4171	Transmission Input Shaft Speed Sensor Circuit 9V Reference	I	—
9	0.5	GY / BN	6388	Transmission High Side Driver 2 Control	I	—
10	—	—	—	Not Occupied	—	—
11	0.5	GN / GY	6387	Transmission High Side Driver 1 Control	I	—
12	0.5	WH / RD	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—
13	0.5	BN / WH	585	Transmission Fluid Temperature Sensor Signal	I	—
14	0.5	YE / BN	6404	Clutch Solenoid Valve E Control	I	—
15	0.5	GY / GN	6403	Clutch Solenoid Valve D Control	I	—
16	0.5	GY	6402	Clutch Solenoid Valve C Control	I	—
17 - 18	—	—	—	Not Occupied	—	—

T12 Automatic Transmission X1 (L8T) (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
19	0.5	GN / BK	7819	Default Disable Solenoid Control	I	—
20	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—
21	0.5	VT	4509	Transmission Clutch F Control	I	—
22	0.5	WH / BU	4507	Transmission Clutch H Control	I	—
23	0.5	WH	4508	Transmission Clutch G Control	I	—
24	0.5	GN / WH	1530	Transmission Line Pressure Control Solenoid Valve Control	I	—
25	0.5	VT / WH	422	Torque Converter Clutch Solenoid Valve Control	I	—
26	0.5	BK / BN	586	Transmission Fluid Temperature Sensor Low Reference	I	—

T12 Automatic Transmission X2 (MGM / MGU / MKM)

FIGURESIO=6258089 Owner=Owner, Schematics
LMD=26-Jan-2023



4757907

Connector Part Information

Harness Type: Automatic Transmission Wiring Harness - Case
OEM Connector: 2203990-1
Service Connector: Service by Harness - See Part Catalog
Description: 13-Way F 1.2 MCON Series(BN)

Terminal Part Information

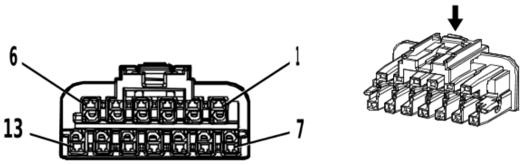
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (BU)	No Tool Required
II	Not required	J-35616-16 (L-GN)	No Tool Required

T12 Automatic Transmission X2 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE / GY	3337	Transmission Internal Mode Switch Mode Control Y	II	—
2	0.5	YE	6317	Electronic Transmission Range Select Out of Park Switch Signal	II	—
3	0.5	YE / OG	6358	Output Speed Signal	I	—
4	0.5	WH / BU	4510	Transmission Intermediate Speed Signal	I	—
5	0.5	VT / GN	4510	Transmission Intermediate Speed Signal	I	—
6	0.5	WH / VT	6353	Input Speed Signal	I	—
7	0.5	BN / YE	585	Transmission Fluid Temperature Sensor Signal	I	—
8	0.5	OG	480	Engine Control Vehicle Sensors 5 Volt Reference 1	I	—
9	0.5	BN	6387	Transmission High Side Driver 1 Control	I	—
10	1.5	GN / VT	8540	Battery Positive Voltage	I	—
11	0.5	WH	6388	Transmission High Side Driver 2 Control	I	—
12	0.5	BU	4171	Transmission Input Shaft Speed Sensor Circuit 9V Reference	I	—
13	0.5	GN	4170	Transmission Output Shaft Speed Sensor Circuit 9V Reference	I	—

T12 Automatic Transmission X3 (MGM / MGU / MKM)

FIGURESIO=6258091 Owner=Owner, Schematics
LMD=26-Jan-2023



4757999

Connector Part Information

Harness Type: Automatic Transmission Wiring Harness - Case
OEM Connector: 2203990-2
Service Connector: Service by Harness - See Part Catalog
Description: 13-Way F 1.2 MCON Series(BN)

Terminal Part Information

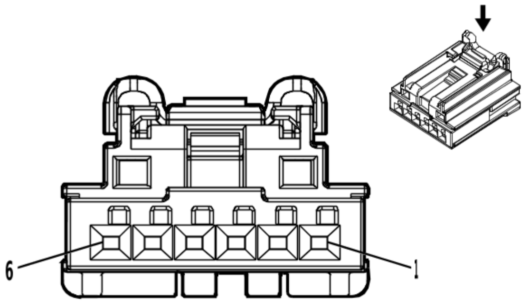
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (BU)	No Tool Required

T12 Automatic Transmission X3 (MGM / MGU / MKM)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN / WH	4509	Transmission Clutch F Control	I	—
2	0.5	YE / VT	4507	Transmission Clutch H Control	I	—
3	0.5	BU / GY	4508	Transmission Clutch G Control	I	—
4	0.5	GN / OG	1530	Transmission Line Pressure Control Solenoid Valve Control	I	—
5	0.5	GY / BN	422	Torque Converter Clutch Solenoid Valve Control	I	—
6	0.5	BU / BN	586	Transmission Fluid Temperature Sensor Low Reference	I	—
7	0.5	BU / GN	6404	Clutch Solenoid Valve E Control	I	—
8	0.5	GN / BN	6403	Clutch Solenoid Valve D Control	I	—
9	0.5	GY	6402	Clutch Solenoid Valve C Control	I	—
10	1.5	BK / YE	450	Ground	I	—
11	0.5	GY / OG	2968	Transmission Auxiliary Fluid Pump Control	I	—
12	0.5	VT	7819	Default Disable Solenoid Control	I	—
13	0.5	BK / GY	626	Engine Control Vehicle Sensors Low Reference 1	I	—

T22 Wireless Accessory Charging Module

FIGURESIO=6217766 Owner=Owner, Schematics LMD=26-Jan-2023



5020940

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 13920634
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

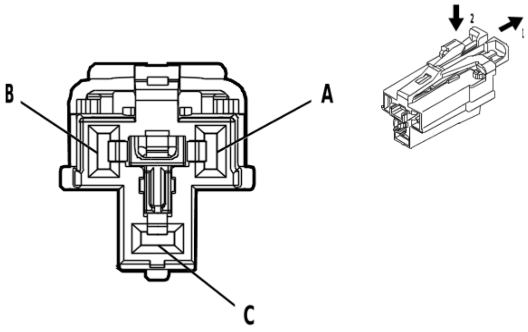
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

T22 Wireless Accessory Charging Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / VT	2640	Battery Positive Voltage	I	—
2	0.5	BK	1350	Ground	I	—
3	0.5	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
4	0.5	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—
5	0.5	BU / YE	4984	AUTOSAR CAN Bus [-] 5 Serial Data	I	—
6	0.5	BU / WH	4985	AUTOSAR CAN Bus [+] 5 Serial Data	I	—

X80G Accessory Power Receptacle - Instrument Panel

FIGURESIO=6217767 Owner=Owner, Schematics
LMD=26-Jan-2023



4872413

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 33386302
Service Connector: 19369281
Description: 3-Way F 2.8 APEX Series(GY)

Terminal Part Information

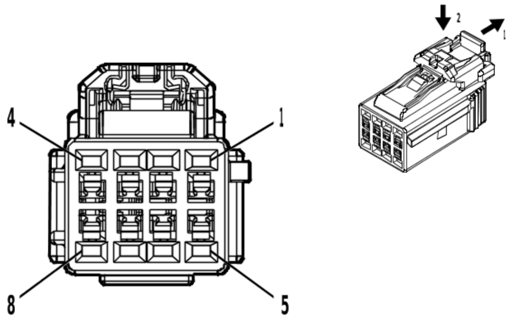
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required

X80G Accessory Power Receptacle - Instrument Panel

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT	1001	Retained Accessory Power Ignition Voltage	I	—
B	—	—	—	Not Occupied	—	—
C	1.5	BK	1050	Ground	I	—

X81ACA Front Floor Console Accessory Power Rear Receptacle - 110V AC (KI4)

FIGURESIO=6217768 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 35029311
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

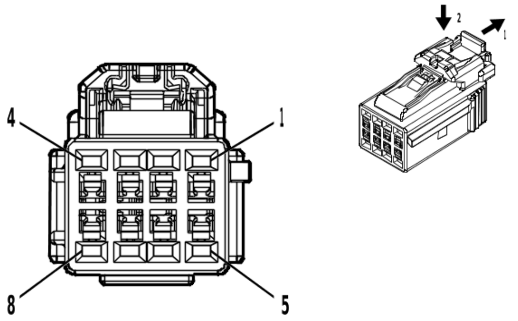
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

X81ACA Front Floor Console Accessory Power Rear Receptacle - 110V AC (KI4)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	0.5	BU / BN	6807	DC/AC Inverter Control	I	—
5	0.75	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.5	BK	1350	Ground	I	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X81ACA Front Floor Console Accessory Power Rear Receptacle - 110V AC (KI4 & D07)

FIGURESIO=6258093 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 35029311
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

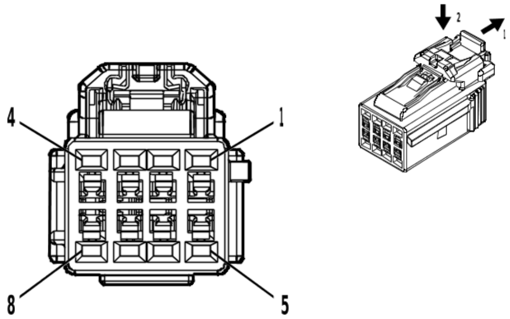
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X81ACA Front Floor Console Accessory Power Rear Receptacle - 110V AC (KI4 & D07)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	—	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	—	BU / BN	6807	DC/AC Inverter Control	I	—
5	—	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	—	BK	1350	Ground	I	—
8	—	YE	6817	LED Backlight Dimming Control 1	I	—

X81AI Accessory Power Receptacle - Instrument Panel 110V AC (KI4)

FIGURESIO=6217769 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35029311
Service Connector: 84613126
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

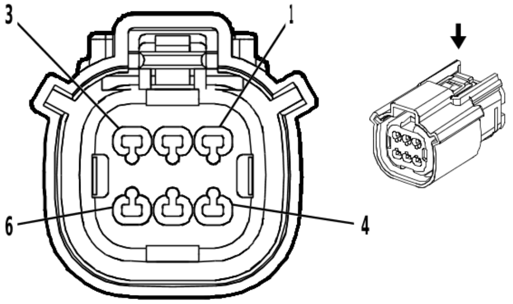
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

X81AI Accessory Power Receptacle - Instrument Panel 110V AC (KI4)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	0.5	BU / BN	6807	DC/AC Inverter Control	I	—
5	0.75	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.5	BK	1050	Ground	I	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X81AP Pickup Box Accessory Power Receptacle - 110V AC (KC9)

FIGURESIO=6217770 Owner=Owner, Schematics LMD=26-Jan-2023



1986157

Connector Part Information

Harness Type: Chassis Rear Wiring Harness
OEM Connector: 15533832
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

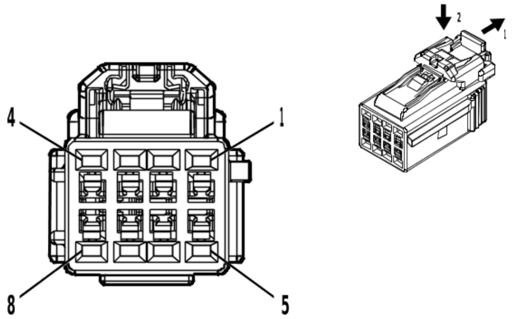
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

X81AP Pickup Box Accessory Power Receptacle - 110V AC (KC9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
2	0.5	GN / BN	2266	DC/AC Inverter Control 2	I	—
3	—	—	—	Not Occupied	—	—
4	0.75	BK / WH	10120	AC Outlet 2 Phase A Control	I	—
5	0.5	BK	1750	Ground	I	—
6	0.75	RD / WH	10121	AC Outlet 2 Phase B Control	I	—

X81BCA Front Floor Console Accessory Power Rear Receptacle - 220V AC (KI5)

FIGURESIO=6217771 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 35029311
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

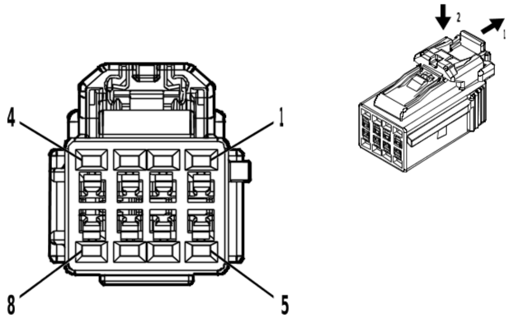
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

X81BCA Front Floor Console Accessory Power Rear Receptacle - 220V AC (KI5)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	0.5	BU / BN	6807	DC/AC Inverter Control	I	—
5	0.75	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.5	BK	1350	Ground	I	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X81BCA Front Floor Console Accessory Power Rear Receptacle - 220V AC (KI5 & D07)

FIGURESIO=6258095 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 35029311
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

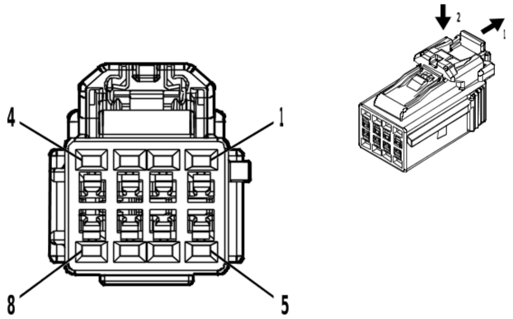
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X81BCA Front Floor Console Accessory Power Rear Receptacle - 220V AC (KI5 & D07)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	—	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	—	BU / BN	6807	DC/AC Inverter Control	I	—
5	—	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	—	BK	1350	Ground	I	—
8	—	YE	6817	LED Backlight Dimming Control 1	I	—

X81BI Accessory Power Receptacle - Instrument Panel 220V AC (KI5)

FIGURESIO=6217772 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35029311
Service Connector: 84613126
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

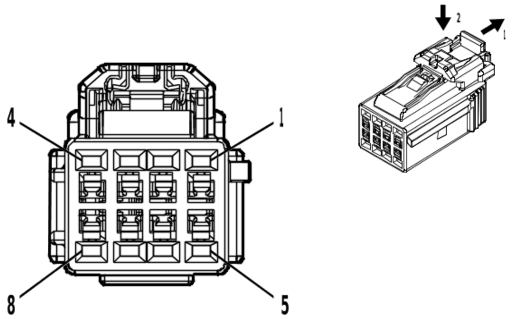
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

X81BI Accessory Power Receptacle - Instrument Panel 220V AC (KI5)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	0.5	BU / BN	6807	DC/AC Inverter Control	I	—
5	0.75	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.5	BK	1050	Ground	I	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X81BI Accessory Power Receptacle - Instrument Panel 220V AC (KCA)

FIGURESIO=6258097 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35029311
Service Connector: 84613126
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

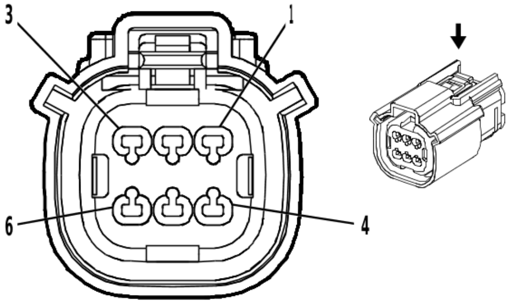
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (L-GN)	No Tool Required

X81BI Accessory Power Receptacle - Instrument Panel 220V AC (KCA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	0.5	BU / BN	6807	DC/AC Inverter Control	I	—
5	0.75	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.5	BK	1050	Ground	I	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X81BP Pickup Box Accessory Power Receptacle - 220V AC (KCA)

FIGURESIO=6217773 Owner=Owner, Schematics LMD=26-Jan-2023



1986157

Connector Part Information

Harness Type: Chassis Rear Wiring Harness
OEM Connector: 15533832
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 1.5 MX Series, Sealed(BK)

Terminal Part Information

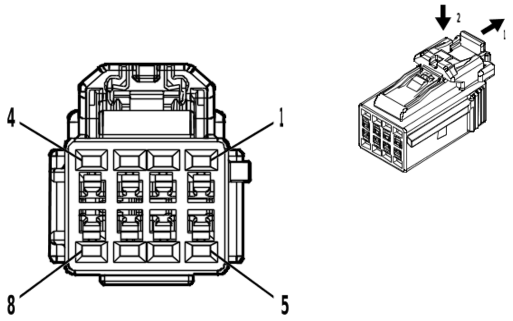
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required

X81BP Pickup Box Accessory Power Receptacle - 220V AC (KCA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
2	0.5	GN / BN	2266	DC/AC Inverter Control 2	I	—
3	—	—	—	Not Occupied	—	—
4	0.75	BK / WH	10120	AC Outlet 2 Phase A Control	I	—
5	0.5	BK	1750	Ground	I	—
6	0.75	RD / WH	10121	AC Outlet 2 Phase B Control	I	—

X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC (KI4)

FIGURESIO=6217774 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Front Seat Wiring Harness - Center
OEM Connector: 6098-8443
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

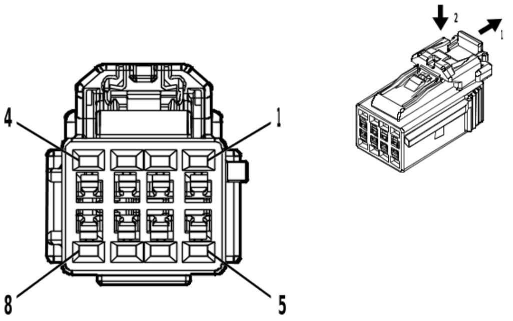
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC (KI4)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.75	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	0.75	BU / BN	6807	DC/AC Inverter Control	I	—
5	0.75	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.75	BK	1050	Ground	I	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC (KI4 & AZ3)

FIGURESIO=6258098 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Front Seat Wiring Harness - Center

OEM Connector: 6098-8443

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

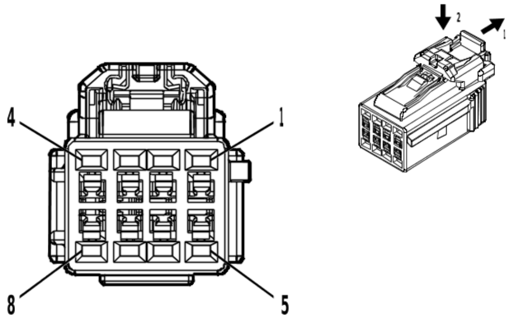
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-16 (L-GN)	No Tool Required

X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC (KI4 & AZ3)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.75	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	0.75	BU / BN	6807	DC/AC Inverter Control	I	—
5	0.75	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.75	BK	1050	Ground	I	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X81FSB Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC (KI5)

FIGURESIO=6217775 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Front Seat Wiring Harness - Center
OEM Connector: 6098-8443
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.2 Series(BK)

Terminal Part Information

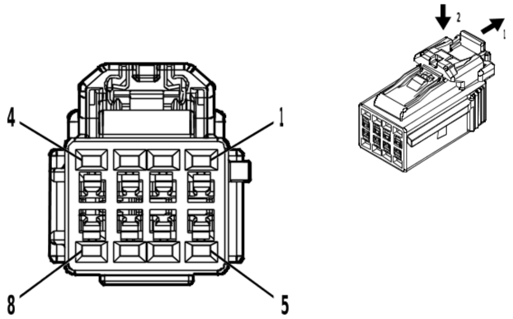
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required

X81FSB Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC (KI5)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	I	—
2	—	—	—	Not Occupied	—	—
3	0.75	VT / RD	4049	AC Power Outlet Sensor High Reference	I	—
4	0.75	BU / BN	6807	DC/AC Inverter Control	I	—
5	0.75	RD	10118	AC Outlet Phase B Control	I	—
6	—	—	—	Not Occupied	—	—
7	0.75	BK	1050	Ground	I	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X81FSB Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC (KI5 & D07)

FIGURESIO=6258100 Owner=Owner, Schematics LMD=26-Jan-2023



5086387

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 35029311
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way F 1.2 Series(BK)

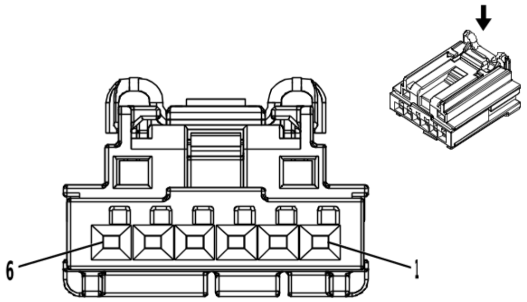
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (BU)	No Tool Required
II	Not required	J-35616-16 (L-GN)	No Tool Required

X81FSB Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC (KI5 & D07)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	10117	AC Outlet Phase A Control	II	—
2	—	—	—	Not Occupied	—	—
3	0.5	VT / RD	4049	AC Power Outlet Sensor High Reference	II	—
4	0.5	BU / BN	6807	DC/AC Inverter Control	II	—
5	0.75	RD	10118	AC Outlet Phase B Control	II	—
6	—	—	—	Not Occupied	—	—
7	0.5	BK	1350	Ground	II	—
8	0.35	YE	6817	LED Backlight Dimming Control 1	I	—

X83B Audio/Video Receptacle X1 FIGURESIO=6217776 Owner=Owner, Schematics LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 13920633
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

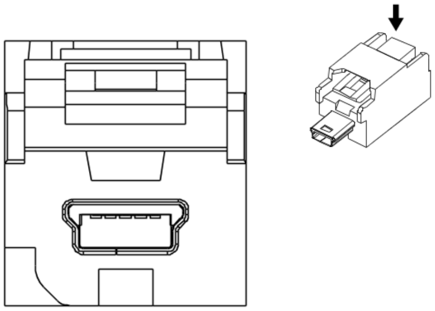
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

X83B Audio/Video Receptacle X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / VT	2640	Battery Positive Voltage	I	—
2	0.5 0.35	YE YE	6817 6817	LED Backlight Dimming Control 1 LED Backlight Dimming Control 1	I I	D07+ UBC+ UBI- UBD D07+ UBC- UBI- UBD+ (KI4/ KI5)
3	0.5	BK / WH	1051	Signal Ground	I	—
4 - 6	—	—	—	Not Occupied	—	—

X83B Audio/Video Receptacle X2

FIGURESIO=6217777 Owner=Owner, Schematics LMD=26-Jan-2023



3214018

Connector Part Information

Harness Type: Front Floor Console Wiring Harness USB
OEM Connector: 13890926
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 5-Way M 2.0 Mini-B USB Type(GY)

Terminal Part Information

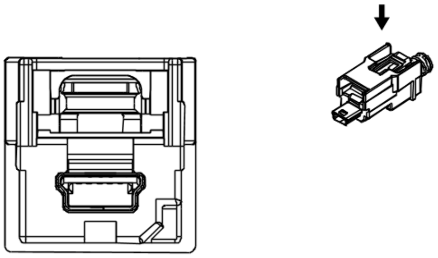
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X83B Audio/Video Receptacle X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	USB	—	USB Serial Data	I	—

X83B Audio/Video Receptacle X3

FIGURESIO=6217778 Owner=Owner, Schematics LMD=26-Jan-2023



Connector Part Information

Harness Type: Front Floor Console Wiring Harness USB
OEM Connector: 13890925
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 5-Way M 2.0 Mini-B USB Type(BK)

Terminal Part Information

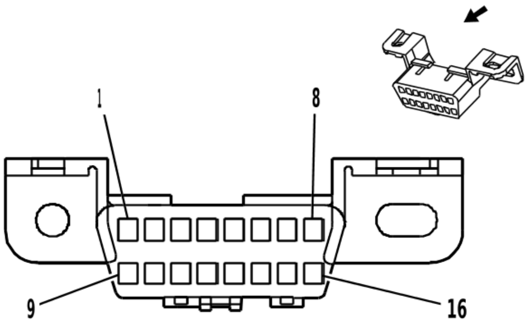
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X83B Audio/Video Receptacle X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	USB	—	USB Serial Data	I	—

X84 Data Link Connector

FIGURESIO=6217779 Owner=Owner, Schematics LMD=26-Jan-2023



68793

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 12110250
Service Connector: 12110250
Description: 16-Way F 150 Metri-Pack Series(BK)

Terminal Part Information

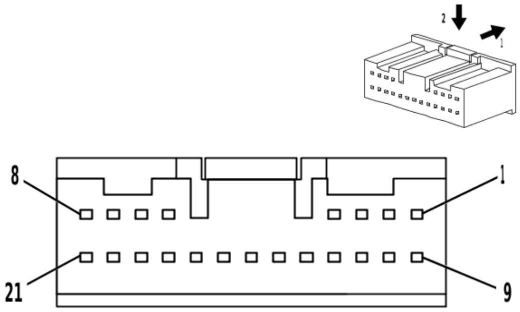
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13580059	J-35616-14 (GN)	J-38125-12A

X84 Data Link Connector

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / BN	4983	AUTOSAR CAN Bus [+] 7 Serial Data	I	—
2	0.35	GN	2578	Private Serial Data Presentation CAN Bus [+] 1 Serial Data	I	—
3	0.35	BU	4973	Ethernet Bus 1R [+]	I	—
4	0.5	BK	1050	Ground	I	—
5	0.5	BK / WH	851	Signal Ground	I	—
6	0.35	YE	4981	AUTOSAR CAN Bus [+] 6 Serial Data	I	—
7	0.35	VT	2580	Private Serial Data Presentation CAN Bus [+] 2 Serial Data	I	—
8	0.35	WH	7207	Ethernet Bus 1 Enable Signal	I	—
9	0.35	WH	4982	AUTOSAR CAN Bus [-] 7 Serial Data	I	—
10	0.35	BN	2577	Private Serial Data Presentation CAN Bus [-] 1 Serial Data	I	—
11	0.35	YE	4972	Ethernet Bus 1R [-]	I	—
12	0.35	BU	4975	Ethernet Bus 1T [+]	I	—
13	0.35	GN	4974	Ethernet Bus 1T [-]	I	—
14	0.35	WH	4980	AUTOSAR CAN Bus [-] 6 Serial Data	I	—
15	0.35	GY	2579	Private Serial Data Presentation CAN Bus [-] 2 Serial Data	I	—
16	0.5	RD / YE	6540	Battery Positive Voltage	I	—

X85 Steering Wheel Airbag Coil X1

FIGURESIO=6258102 Owner=Owner, Schematics LMD=26-Jan-2023



3960237

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 33291416
Service Connector: 13510218
Description: 21-Way F 0.64 Series(YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13575742	J-35616-64B (L-BU)	J-38125-215A
II	13575865	J-35616-64B (L-BU)	J-38125-215A

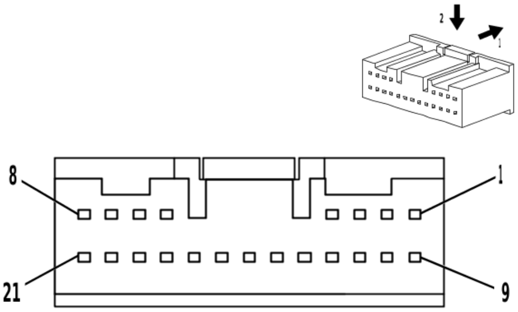
X85 Steering Wheel Airbag Coil X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK / WH	851	Signal Ground	I	—
2	0.35	GN / WH	3287	Horn Switch Signal	I	—
3 - 4	—	—	—	Not Occupied	—	—
5	0.35	OG / GN	3023	Steering Wheel Air Bag Stage 2 High Control	II	—
6	0.35	WH / OG	3022	Steering Wheel Air Bag Stage 2 Low Control	II	—
7	0.35	BN / OG	3020	Steering Wheel Air Bag Stage 1 Low Control	II	—
8	0.35	OG / VT	3021	Steering Wheel Air Bag Stage 1 High Control	II	—
9	0.5	GN / BK	3894	Instrument Panel Cluster Control Module LIN Bus 1	I	—
10	0.35	GN / BK	2858	Body Control Module LIN Bus 12	I	—
11	0.35	BN / GN	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal	I	—
12	0.35	BK / VT	1449	Steering Wheel Resistor Ladder Low Reference	I	—
13	—	—	—	Not Occupied	—	—
14	0.35	RD / GN	5140	Battery Positive Voltage	I	—
15	0.35	GY / GN	5737	Distance Sensing Cruise Control Gap Up/Down Switch Signal	I	—
16	—	—	—	Not Occupied	—	—
17	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
18 - 19	—	—	—	Not Occupied	—	—

X85 Steering Wheel Airbag Coil X1 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
20	0.5	BK	1050	Ground	I	—
21	0.5	RD / BN	10040	Battery Positive Voltage	I	—

X85 Steering Wheel Airbag Coil X2 FIGURESIO=6258104 Owner=Owner, Schematics LMD=26-Jan-2023



3960237

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13510218
Service Connector: Service by Harness - See Part Catalog
Description: 21-Way F 0.64 Series(YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

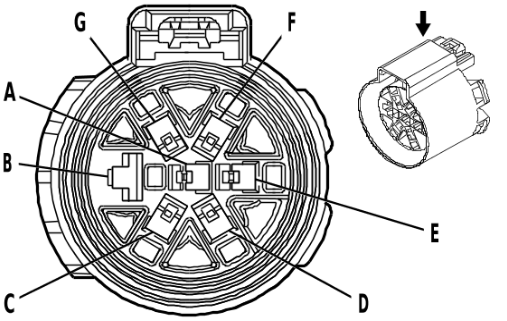
X85 Steering Wheel Airbag Coil X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	—	BK / WH	6051	Steering Wheel Ground	I	—
2	—	GN / WH	3287	Horn Switch Signal	I	—
3 - 4	—	—	—	Not Occupied	—	—
5	—	OG / GN	3023	Steering Wheel Air Bag Stage 2 High Control	I	—
6	—	WH / OG	3022	Steering Wheel Air Bag Stage 2 Low Control	I	—
7	—	BN / OG	3020	Steering Wheel Air Bag Stage 1 Low Control	I	—
8	—	OG / VT	3021	Steering Wheel Air Bag Stage 1 High Control	I	—
9	—	RD / GN	10040	Battery Positive Voltage	I	—
10	—	BK	6050	Steering Wheel Ground	I	—
11 - 12	—	—	—	Not Occupied	—	—
13	—	YE	6817	LED Backlight Dimming Control 1	I	—
14	—	—	—	Not Occupied	—	—
15	—	GY / GN	5737	Distance Sensing Cruise Control Gap Up/Down Switch Signal	I	—
16	—	RD / GN	5140	Battery Positive Voltage	I	—
17	—	—	—	Not Occupied	—	—
18	—	BK / VT	1449	Steering Wheel Resistor Ladder Low Reference	I	—
19	—	BN / GN	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal	I	—
20	—	GN / BK	2858	Body Control Module LIN Bus 12	I	—

X85 Steering Wheel Airbag Coil X2 (cont'd)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
21	—	GN / BK	3894	Instrument Panel Cluster Control Module LIN Bus 1	I	—

X88B Tow Vehicle Electrical Receptacle X1 FIGURESIO=6217781 Owner=Owner, Schematics LMD=26-Jan-2023



2056936

Connector Part Information

Harness Type: Trailer Rear Wiring Harness
OEM Connector: 13857223
Service Connector: Service by Harness - See Part Catalog
Description: 7-Way F 280, 630 Metri-Pack Series, Sealed(BK)

Terminal Part Information

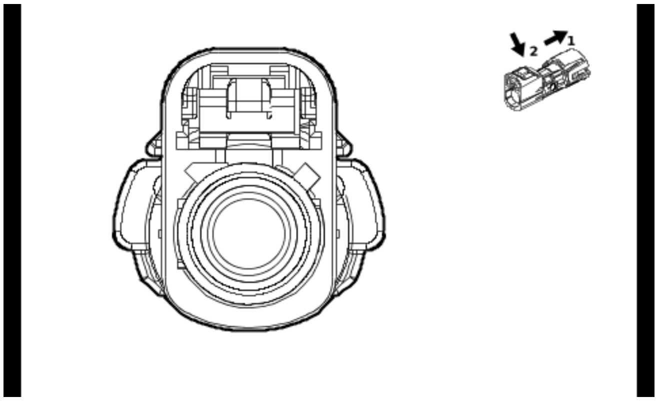
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required

X88B Tow Vehicle Electrical Receptacle X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	GY	1624	Trailer Backup Lamp Control	II	—
B	5	WH	22	Trailer Ground	I	—
C	4	BU	47	Trailer Auxiliary Control	II	—
D	1	GN	1619	Right Rear Trailer Stop/Turn Lamp Control	II	—
E	4	OG	3640	Battery Positive Voltage	II	—
F	1.5	BN	2109	Trailer Park Lamp Control	II	—
G	1	YE	1618	Left Rear Trailer Stop/Turn Lamp Control	II	—

X88B Tow Vehicle Electrical Receptacle X2

FIGURESIO=6217782 Owner=Owner, Schematics LMD=26-Jan-2023



5758030

Connector Part Information

Harness Type: Chassis Wiring Harness COAX
OEM Connector: 35187032
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BK)

Terminal Part Information

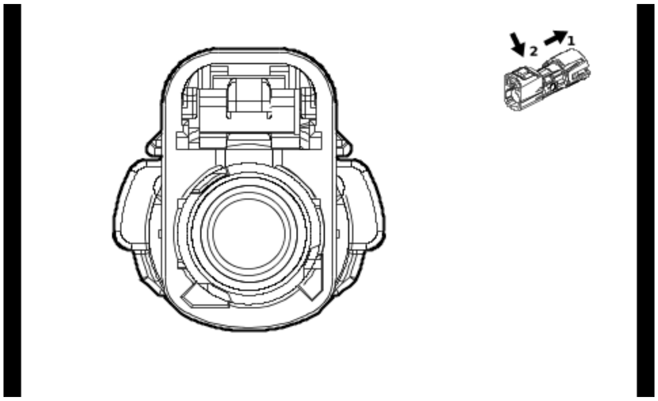
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X88B Tow Vehicle Electrical Receptacle X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Trailer Rear Vision Camera Coaxial Video Signal	I	—

X88B Tow Vehicle Electrical Receptacle X3

FIGURESIO=6217783 Owner=Owner, Schematics LMD=26-Jan-2023



5757455

Connector Part Information

Harness Type: Chassis Wiring Harness COAX
OEM Connector: 35187043
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(OG)

Terminal Part Information

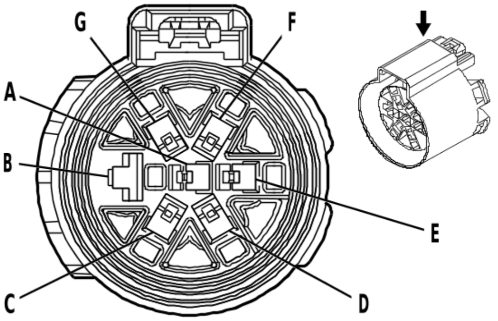
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X88B Tow Vehicle Electrical Receptacle X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	Coax Cable	—	Trailer 2 Rear Vision Camera Coaxial Video Signal	I	—

X88GB Tow Vehicle Electrical Receptacle - 5th Wheel/Camper

FIGURESIO=6217784 Owner=Owner, Schematics LMD=26-Jan-2023



2056936

Connector Part Information

Harness Type: Trailer Rear Wiring Harness
OEM Connector: 13857223
Service Connector: Service by Harness - See Part Catalog
Description: 7-Way F 280, 630 Metri-Pack Series, Sealed(BK)

Terminal Part Information

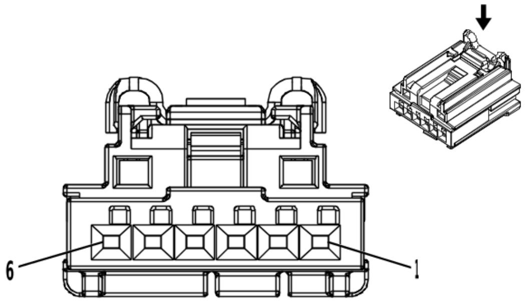
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required

X88GB Tow Vehicle Electrical Receptacle - 5th Wheel/Camper

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	GY	1624	Trailer Backup Lamp Control	II	—
B	5	WH	22	Trailer Ground	I	—
C	4	BU	47	Trailer Auxiliary Control	II	—
D	1	GN	1619	Right Rear Trailer Stop/Turn Lamp Control	II	—
E	4	OG	3640	Battery Positive Voltage	II	—
F	1.5	BN	2109	Trailer Park Lamp Control	II	—
G	1	YE	1618	Left Rear Trailer Stop/Turn Lamp Control	II	—

X92CD Dual Charge Only Receptacle - Floor Console Rear

FIGURESIO=6217785 Owner=Owner, Schematics
LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 13920633
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

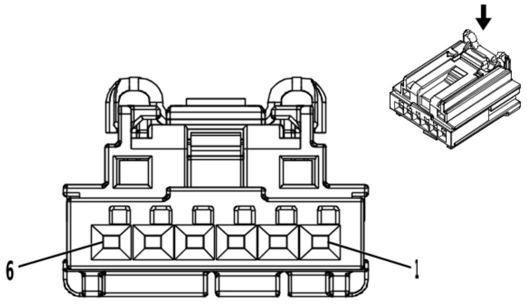
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

X92CD Dual Charge Only Receptacle - Floor Console Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT	4701	Retained Accessory Power Control	I	—
2	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.35	BK	1350	Ground	I	—
4 - 6	—	—	—	Not Occupied	—	—

X92CF USB 2 Port Receptacle - Floor Console Front X1

FIGURESIO=6217786 Owner=Owner, Schematics
LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Floor Console Wiring Harness
OEM Connector: 13920633
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

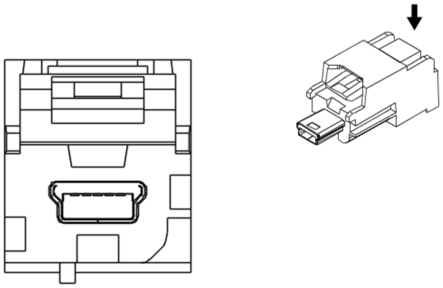
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

X92CF USB 2 Port Receptacle - Floor Console Front X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / VT	2640	Battery Positive Voltage	I	—
2	0.5	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.5	BK / WH	1051	Signal Ground	I	—
4 - 6	—	—	—	Not Occupied	—	—

X92CF USB 2 Port Receptacle - Floor Console Front X2

FIGURESIO=6217787 Owner=Owner, Schematics
LMD=26-Jan-2023



3028807

Connector Part Information

Harness Type: Front Floor Console Wiring Harness USB
OEM Connector: 13921002
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 5-Way M 2.0 Mini-B USB Type(GY)

Terminal Part Information

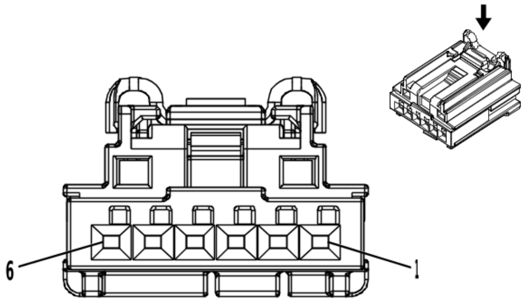
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X92CF USB 2 Port Receptacle - Floor Console Front X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	USB	—	USB Serial Data	I	—

X92FSR Dual Charge Only Receptacle - Front Center Seat Rear Cover

FIGURESIO=6217788 Owner=Owner, Schematics LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Front Seat Wiring Harness - Center
OEM Connector: 2035363-4
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

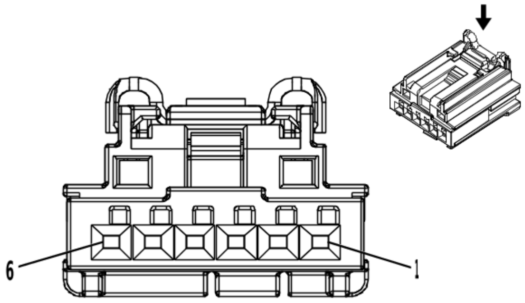
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

X92FSR Dual Charge Only Receptacle - Front Center Seat Rear Cover

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT	4701	Retained Accessory Power Control	I	—
2	0.35	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.35	BK	1350	Ground	I	—
4 - 6	—	—	—	Not Occupied	—	—

X92IP USB 2 Port Receptacle - Instrument Panel X1

FIGURESIO=6217789 Owner=Owner, Schematics
LMD=26-Jan-2023



3960313

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 13920633
Service Connector: 19332786
Description: 6-Way F 0.64 Generation Y Series(BK)

Terminal Part Information

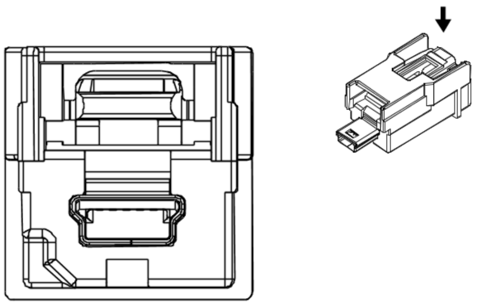
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-64B (L-BU)	No Tool Required

X92IP USB 2 Port Receptacle - Instrument Panel X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD / VT	2640	Battery Positive Voltage	I	—
2	0.5	YE	6817	LED Backlight Dimming Control 1	I	—
3	0.75	BK / WH	1051	Signal Ground	I	—
4 - 6	—	—	—	Not Occupied	—	—

X92IP USB 2 Port Receptacle - Instrument Panel X2

FIGURESIO=6217790 Owner=Owner, Schematics
LMD=26-Jan-2023



2807491

Connector Part Information

Harness Type: Instrument Panel Wiring Harness USB
OEM Connector: 13581313
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 5-Way M 2.0 Mini-B USB Type(GY)

Terminal Part Information

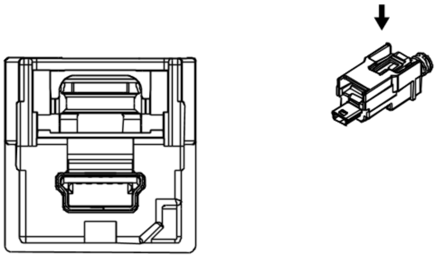
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X92IP USB 2 Port Receptacle - Instrument Panel X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	USB	—	USB Serial Data	I	—

X92IP USB 2 Port Receptacle - Instrument Panel X3

FIGURESIO=6217791 Owner=Owner, Schematics
LMD=26-Jan-2023



2807425

Connector Part Information

Harness Type: Instrument Panel Wiring Harness USB
OEM Connector: 13576672
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 5-Way M 2.0 Mini-B USB Type(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X92IP USB 2 Port Receptacle - Instrument Panel X3

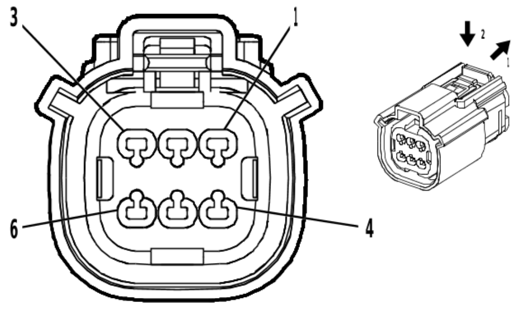
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
—	—	USB	—	USB Serial Data	I	—

Inline Harness Connector End Views

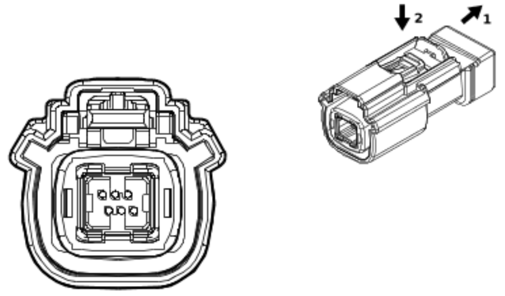
Object-ID=6217890 Owner=Owner, Schematics LMD=10-Feb-2023 LMB=Kalb, William

X112 Engine Wiring Harness Chassis to Cooling Fan Harness (L5P)

FIGURESIO=6217792 Owner=Owner, Schematics LMD=26-Jan-2023



4574736



4477145

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33367609
Service Connector: 13578533
Description: 6-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Cooling Fan Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way M (BK)

Terminal Part Information

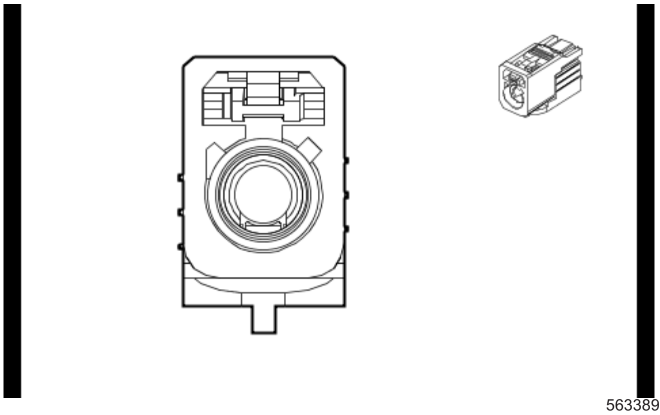
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	No Tool Required	No Tool Required

X112 Engine Wiring Harness Chassis to Cooling Fan Harness (L5P)

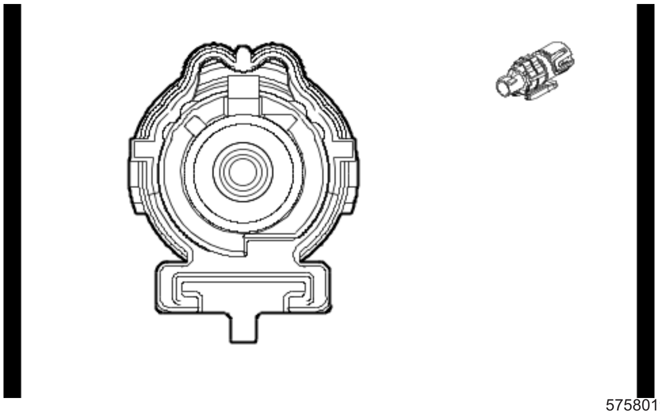
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	1.5	BK	450	I	—	Ground	1	1.5	BK	450	II	—
2	—	—	—	—	—	Not Occupied	2	—	—	—	—	—
3	0.5	WH	2368	I	—	Cooling Fan Control Signal	3	0.5	WH	2368	II	—
4	0.5	BK / GY	626	I	—	Engine Control Vehicle Sensors Low Reference 1	4	0.5	BK / GY	626	II	—
5	0.5	BU / VT	2364	I	—	Cooling Fan Speed Signal	5	0.5	BU / VT	2364	II	—
6	0.5	WH / RD	480	I	—	Engine Control Vehicle Sensors 5 Volt Reference 1	6	0.5	WH / RD	480	II	—

X122 Front View Camera Switch Wiring Harness to Body Wiring Harness

FIGURESIO=6217793 Owner=Owner, Schematics LMD=26-Jan-2023



5633890



5758019

Connector Part Information

Harness Type: Front View Camera Switch Wiring Harness COAX

OEM Connector: Not Available

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F

Connector Part Information

Harness Type: Body Wiring Harness COAX

OEM Connector: 33338239

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way M Coax Type, Sealed(BK)

Terminal Part Information

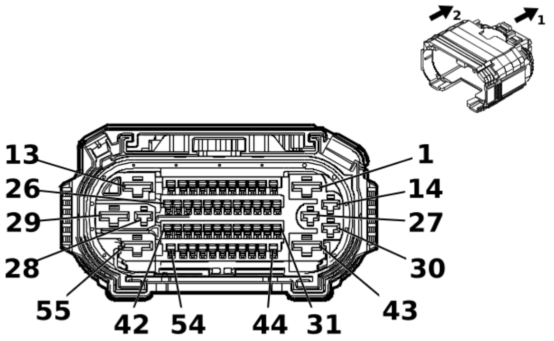
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X122 Front View Camera Switch Wiring Harness to Body Wiring Harness

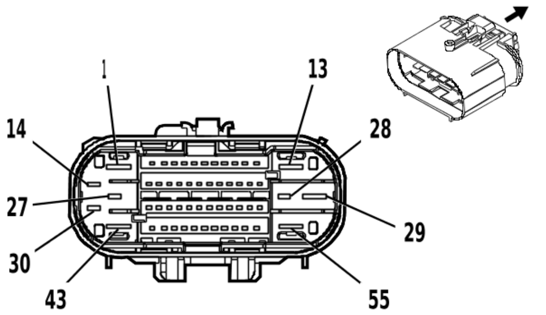
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	Coax Cable	—	I	—	Front Vision Camera 1 Coaxial Video Signal	—	—	Coax Cable	—	I	—

X125 Body Wiring Harness to Engine Wiring Harness Chassis (L5P)

FIGURESIO=6217794 Owner=Owner, Schematics LMD=26-Jan-2023



5246872



4994369

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 35016653

Service Connector: 19371184

Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Connector Part Information

Harness Type: Engine Wiring Harness Chassis

OEM Connector: 35664004

Service Connector: 84727363

Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19332901	J-35616-35 (VT)	J-38125-212
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	19371217	J-35616-12 (L-BU)	J-38125-553
IV	84634921	J-35616-42 (RD)	J-38125-212
V	84847992	J-35616-32 (OG)	J-38125-36
VI	84867140	J-35616-13 (L-BU)	J-38125-215A
VII	84867141	J-35616-13 (L-BU)	J-38125-215A
VIII	84992391	J-35616-5 (PU)	J-38125-215A

X125 Body Wiring Harness to Engine Wiring Harness Chassis (L5P)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	4	BK / WH	251	IV	—	Signal Ground	1	4	BK / WH	251	V	—
2	1.5	RD / GN	1840	III	—	Battery Positive Voltage	2	1.5	RD / GN	1840	VII	—
3	0.5	BN / GN	4311	II	—	Power Take-Off Enable Cabin Switch Normally Closed Signal	3	0.5	BN / GN	4311	VI	—
4 - 7	—	—	—	—	—	Not Occupied	4 - 7	—	—	—	—	—
8	0.35	WH / RD	1164	III	—	Accelerator Pedal Position 5V Reference 1	8	0.5	WH / RD	1164	VI	—

X125 Body Wiring Harness to Engine Wiring Harness Chassis (L5P) (cont'd)

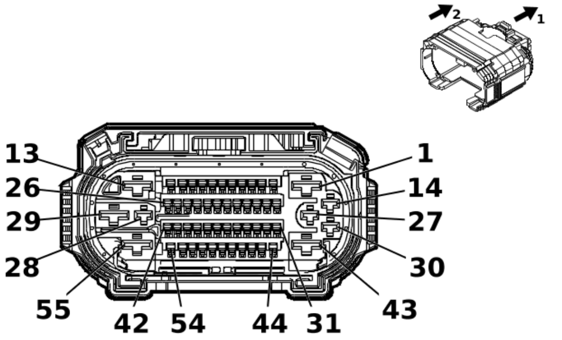
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
9	0.35	BK / BU	1271	III	—	Accelerator Pedal Position Low Reference 1	9	0.5	BK / BU	1271	VI	—
10	0.35	YE / WH	1161	III	—	Accelerator Pedal Position Signal 1	10	0.5	YE / WH	1161	VI	—
11	0.35	GN / WH	1162	III	—	Accelerator Pedal Position Signal 2	11	0.5	GN / WH	1162	VI	—
12	—	—	—	—	—	Not Occupied	12	—	—	—	—	—
13	0.5	RD / BU	4540	IV	—	Battery Positive Voltage	13	0.5	RD / BU	4540	V	—
14	0.5	RD / VT	2640	I	—	Battery Positive Voltage	14	0.5	RD / VT	2640	VIII	—
15	0.35	BN / RD	1274	III	—	Accelerator Pedal Position 5V Reference 2	15	0.5	BN / RD	1274	VI	—
16	0.5	YE	4063	II	—	Hood Status A Signal	16	0.5	YE	4063	VI	—
17	—	—	—	—	—	Not Occupied	17	—	—	—	—	—
18	0.35	WH / RD	480	III	—	Engine Control Vehicle Sensors 5 Volt Reference 1	18	0.5	WH / RD	480	VI	—
19	0.35	GN / BN	507	III	—	Wait To Start Indicator Control	19	0.5	GN / BN	507	VI	—
20	0.35	WH / GN	5380	III	—	Brake Position Sensor Signal	20	0.5	WH / GN	5380	VI	—
21	—	—	—	—	—	Not Occupied	21	—	—	—	—	—
22	0.35	BK / VT	1272	III	—	Accelerator Pedal Position Low Reference 2	22	0.5	BK / VT	1272	VI	—
23	0.5	BK / GY	626	II	—	Engine Control Vehicle Sensors Low Reference 1	23	0.5	BK / GY	626	VI	—
24	—	—	—	—	—	Not Occupied	24	—	—	—	—	—
25	0.5	BU / GY	636	II	—	Ambient Air Temperature Sensor Signal	25	0.5	BU / GY	636	VI	—
26	0.5	BU / BN	7573	II	—	Air Conditioning Compressor Solenoid Valve Control	26	0.75	BU / BN	7573	VI	—

X125 Body Wiring Harness to Engine Wiring Harness Chassis (L5P) (cont'd)

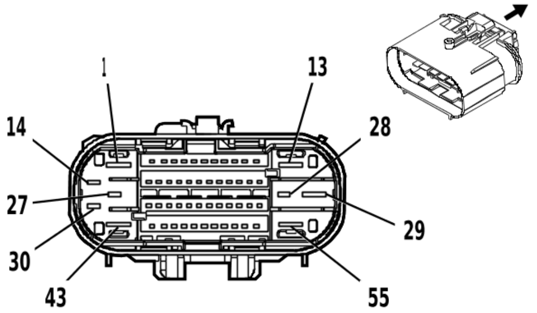
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
27	0.5	BU / YE	7574	I	—	Air Conditioning Compressor Solenoid Valve Control	27	0.75	BU / YE	7574	VIII	—
28	0.5	GN / WH	488	I	—	Power Take-Off Control Switch Signal	28	0.5	GN / WH	488	VIII	—
29 - 32	—	—	—	—	—	Not Occupied	29 - 32	—	—	—	—	—
33	0.5	VT / WH	239	II	—	Run/Crank Ignition 1 Voltage	33	0.5	VT / WH	239	VI	—
34	0.5	GY / BN	7065	II	—	Right Front Wheel Speed Sensor Control	34	0.5	GY / BN	7065	VI	—
35	0.5	YE	872	II	—	Right Front Wheel Speed Sensor Signal	35	0.5	YE	872	VI	—
36 - 43	—	—	—	—	—	Not Occupied	36 - 43	—	—	—	—	—
44	1	BK	9003	III	—	Cavity Seal	44	—	—	—	—	—
45 - 46	—	—	—	—	—	Not Occupied	45 - 46	—	—	—	—	—
47	0.35	BU / YE	68	III	—	Low Coolant Level Indicator Control	47	0.5	BU / YE	68	VI	—
48 - 52	—	—	—	—	—	Not Occupied	48 - 52	—	—	—	—	—
53	0.35	BN / BU	4892	III	—	Auxiliary Battery Relay Control	53	—	—	—	—	—
54	1	BK	9003	III	—	Cavity Seal	54	—	—	—	—	—
55	—	—	—	—	—	Not Occupied	55	—	—	—	—	—

X125 Body Wiring Harness to Engine Wiring Harness Chassis (L8T)

FIGURESIO=6217795 Owner=Owner, Schematics LMD=26-Jan-2023



5246872



4994369

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 35016653

Service Connector: 19371184

Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Connector Part Information

Harness Type: Engine Wiring Harness

OEM Connector: 35205174

Service Connector: 84727363

Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19332901	J-35616-35 (VT)	J-38125-212
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	19371217	J-35616-12 (L-BU)	J-38125-553
IV	84634921	J-35616-42 (RD)	J-38125-212
V	84847992	J-35616-32 (OG)	J-38125-36
VI	84867140	J-35616-13 (L-BU)	J-38125-215A
VII	84867141	J-35616-13 (L-BU)	J-38125-215A
VIII	84992391	J-35616-5 (PU)	J-38125-215A

X125 Body Wiring Harness to Engine Wiring Harness Chassis (L8T)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	4	BK / WH	251	IV	—	Signal Ground	1	4	BK / WH	251	V	—
2	1.5	RD / GN	1840	III	—	Battery Positive Voltage	2	1.5	RD / GN	1840	VII	—
3 - 7	—	—	—	—	—	Not Occupied	3 - 7	—	—	—	—	—
8	0.35	WH / RD	1164	III	—	Accelerator Pedal Position 5V Reference 1	8	0.5	WH / RD	1164	VI	—
9	0.35	BK / BU	1271	III	—	Accelerator Pedal Position Low Reference 1	9	0.5	BK / BU	1271	VI	—

X125 Body Wiring Harness to Engine Wiring Harness Chassis (L8T) (cont'd)

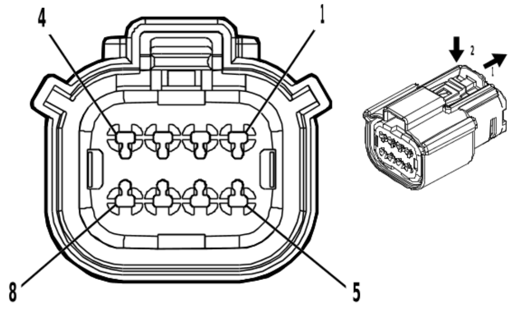
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
10	0.35	YE / WH	1161	III	—	Accelerator Pedal Position Signal 1	10	0.5	YE / WH	1161	VI	—
11	0.35	GN / WH	1162	III	—	Accelerator Pedal Position Signal 2	11	0.5	GN / WH	1162	VI	—
12	1	BK	9003	III	—	Cavity Seal	12	1	BK	9003	VII	—
13 - 14	—	—	—	—	—	Not Occupied	13 - 14	—	—	—	—	—
15	0.35	BN / RD	1274	III	—	Accelerator Pedal Position 5V Reference 2	15	0.5	BN / RD	1274	VI	—
16	0.5	YE	4063	II	—	Hood Status A Signal	16	0.5	YE	4063	VI	—
17	—	—	—	—	—	Not Occupied	17	—	—	—	—	—
18	0.35	WH / RD	480	III	—	Engine Control Vehicle Sensors 5 Volt Reference 1	18	0.5	WH / RD	480	VI	—
19	—	—	—	—	—	Not Occupied	19	—	—	—	—	—
20	0.35	WH / GN	5380	III	—	Brake Position Sensor Signal	20	0.5	WH / GN	5380	VI	—
21	—	—	—	—	—	Not Occupied	21	—	—	—	—	—
22	0.35	BK / VT	1272	III	—	Accelerator Pedal Position Low Reference 2	22	0.5	BK / VT	1272	VI	—
23	0.5	BK / GY	626	II	—	Engine Control Vehicle Sensors Low Reference 1	23	0.5	BK / GY	626	VI	—
24	—	—	—	—	—	Not Occupied	24	—	—	—	—	—
25	0.5	BU / GY	636	II	—	Ambient Air Temperature Sensor Signal	25	0.5	BU / GY	636	VI	—
26	0.5	BU / BN	7573	II	—	Air Conditioning Compressor Solenoid Valve Control	26	0.75	BU / BN	7573	VI	—
27	0.5	BU / YE	7574	I	—	Air Conditioning Compressor Solenoid Valve Control	27	0.75	BU / YE	7574	VIII	—
28 - 33	—	—	—	—	—	Not Occupied	28 - 33	—	—	—	—	—

X125 Body Wiring Harness to Engine Wiring Harness Chassis (L8T) (cont'd)

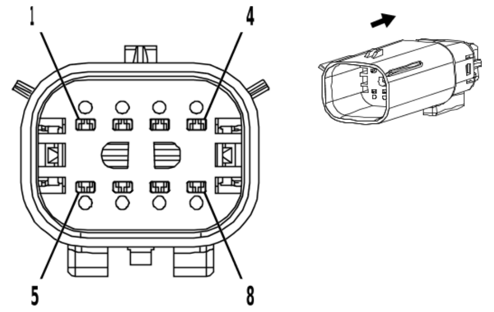
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
34	0.5	GY / BN	7065	II	—	Right Front Wheel Speed Sensor Control	34	0.5	GY / BN	7065	VI	—
35	0.5	YE	872	II	—	Right Front Wheel Speed Sensor Signal	35	0.5	YE	872	VI	—
36 - 43	—	—	—	—	—	Not Occupied	36 - 43	—	—	—	—	—
44	1	BK	9003	III	—	Cavity Seal	44	1	BK	9003	VII	—
45 - 52	—	—	—	—	—	Not Occupied	45 - 52	—	—	—	—	—
53	0.35	BN / BU	4892	III	—	Auxiliary Battery Relay Control	53	0.5	BN / BU	4892	VI	—
54	1	BK	9003	III	—	Cavity Seal	54	1	BK	9003	VII	—
55	—	—	—	—	—	Not Occupied	55	—	—	—	—	—

X128 Engine Wiring Harness to Camshaft Position Sensor Harness (L8T)

FIGURESIO=6217796 Owner=Owner, Schematics LMD=26-Jan-2023



4846407



2667653

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35063116
Service Connector: 84928314
Description: 8-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Camshaft Position Sensor Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way M (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	No Tool Required	No Tool Required

X128 Engine Wiring Harness to Camshaft Position Sensor Harness (L8T)

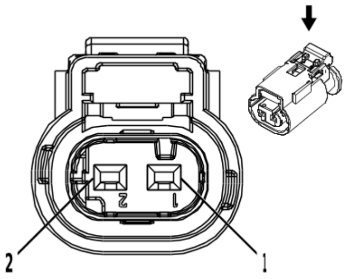
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	GY / BU	5300	I	—	Intake Camshaft Position Sensor 1 Voltage Reference	1	0.5	GY / BU	5300	II	—
2	0.5	BK / GN	5301	I	—	Intake Camshaft Position Sensor Low Reference 1	2	0.5	BK / GN	5301	II	—
3	0.5	YE / VT	5275	I	—	Intake Camshaft Position Sensor 1	3	0.5	YE / VT	5275	II	—
4	0.5	BU	179	I	—	Engine Oil Pump Control	4	0.5	BU	179	II	—
5	0.5	VT / BN	5284	I	—	Intake Camshaft Position Actuator Solenoid Valve 1	5	0.5	VT / BN	5284	II	—

X128 Engine Wiring Harness to Camshaft Position Sensor Harness (L8T) (cont'd)

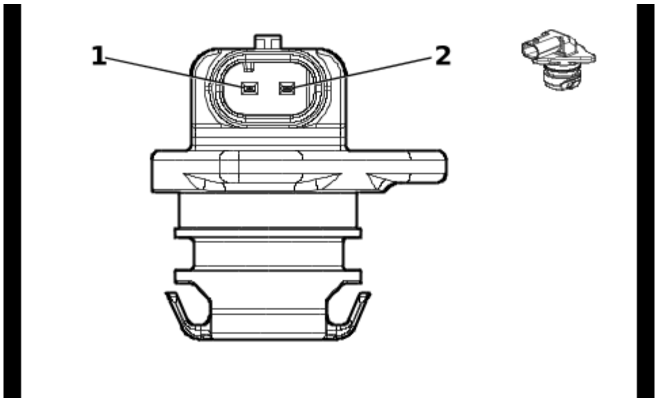
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
6	0.5	BK / BN	6753	I	—	Camshaft Position Actuator Solenoid Valve W Low Reference	6	0.5	BK / BN	6753	II	—
7	0.5	VT / BU	5293	I	—	Powertrain Main Relay Fused Supply Voltage 4	7	0.5	VT / BU	5293	II	—
8	—	—	—	—	—	Not Occupied	8	—	—	—	—	—

X129 Camshaft Position Sensor Harness to Engine Oil Pressure Control Harness (L8T)

FIGURESIO=6258107 Owner=Owner, Schematics LMD=26-Jan-2023



2717066



5869753

Connector Part Information

Harness Type: Camshaft Position Sensor Harness
OEM Connector: 13503566
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 Multilock Series, Sealed(BK)

Connector Part Information

Harness Type: Engine Oil Pressure Control Harness
OEM Connector: 310832B
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 Series, Sealed(BK)

Terminal Part Information

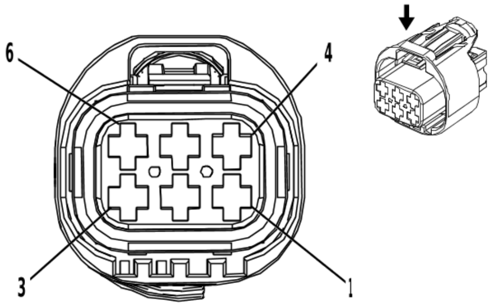
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	No Tool Required	No Tool Required

X129 Camshaft Position Sensor Harness to Engine Oil Pressure Control Harness (L8T)

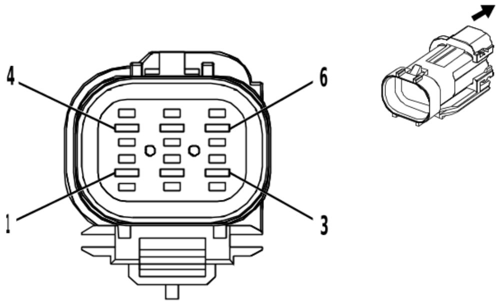
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	VT / BU	5293	I	—	Powertrain Main Relay Fused Supply Voltage 4	1	—	VT / BU	5293	II	—
2	—	BU	179	I	—	Engine Oil Pump Control	2	—	BU	179	II	—

X135 Engine Wiring Harness to Auxiliary Battery Wiring Harness (L8T)

FIGURESIO=6217797 Owner=Owner, Schematics LMD=26-Jan-2023



2042938



2042939

Connector Part Information

Harness Type: Engine Wiring Harness

OEM Connector: 10866617

Service Connector: 19332889

Description: 6-Way F 2.8 Junior Power Timer Series, Sealed(GY)

Connector Part Information

Harness Type: Auxiliary Battery Wiring Harness

OEM Connector: Not Available

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way M (GY)

Terminal Part Information

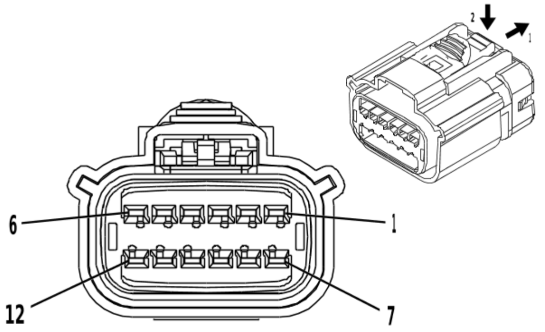
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required
II	Not required	No Tool Required	No Tool Required

X135 Engine Wiring Harness to Auxiliary Battery Wiring Harness (L8T)

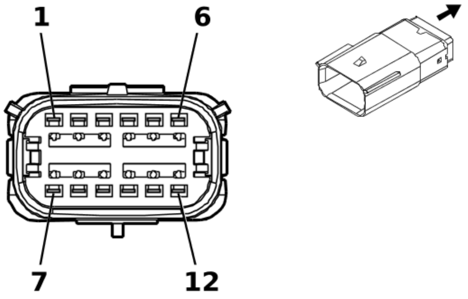
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	BN / BU	4892	I	—	Auxiliary Battery Relay Control	1	0.5	BN / BU	4892	II	—
2	—	—	—	—	—	Not Occupied	2	—	—	—	—	—
3	0.5	RD / WH	3440	I	—	Battery Positive Voltage	3	0.5	RD / WH	3440	II	—
4	1.5	BK	450	I	—	Ground	4	1.5	BK	450	II	—
5 - 6	—	—	—	—	—	Not Occupied	5 - 6	—	—	—	—	—

X150 Front Object Alarm Sensor Wiring Harness to Body Wiring Harness

FIGURESIO=6217798 Owner=Owner, Schematics LMD=26-Jan-2023



4621955



4862194

Connector Part Information

Harness Type: Front Object Alarm Sensor Wiring Harness
OEM Connector: 15514623
Service Connector: Service by Harness - See Part Catalog
Description: 12-Way F 1.5 OCS Series, Sealed(BK)

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 15521147
Service Connector: 19371239
Description: 12-Way M 1.5 OCS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	19352418	J-35616-3 (GY)	J-38125-215A

X150 Front Object Alarm Sensor Wiring Harness to Body Wiring Harness

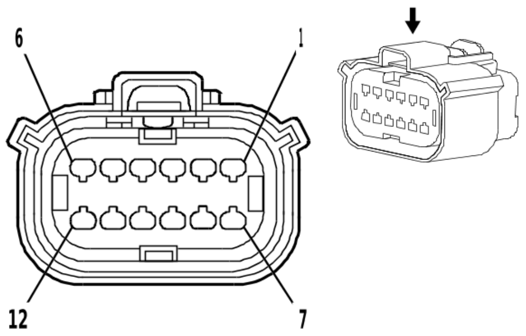
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1 - 2	—	—	—	—	—	Not Occupied	1 - 2	—	—	—	—	—
3	0.5	BK / BU	5214	I	—	Front Parking Assist Sensor Low Reference	3	0.5	BK / BU	5214	II	—
4	0.5	VT / WH	5215	I	—	Left Front Outer Parking Assist Sensor	4	0.5	VT / WH	5215	II	—
5	0.5	YE / GY	5216	I	—	Left Front Middle Parking Assist Sensor	5	0.5	YE / GY	5216	II	—
6	0.5	WH / GY	5217	I	—	Right Front Outer Parking Assist Sensor	6	0.5	WH / GY	5217	II	—
7	0.5	VT / GY	5218	I	—	Right Front Middle Parking Assist Sensor	7	0.5	VT / GY	5218	II	—
8	0.5	BK	650	I	—	Ground	8	0.5	BK	650	II	—
9	—	—	—	—	—	Not Occupied	9	—	—	—	—	—

X150 Front Object Alarm Sensor Wiring Harness to Body Wiring Harness (cont'd)

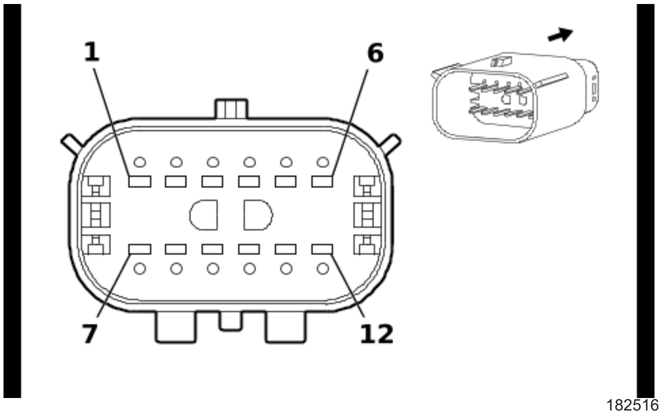
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
10	0.5	BN / GY	5061	I	—	Left Front Fog Lamp Control	10	0.5	BN / GY	5061	II	—
11	0.5	BN	6581	I	—	Front Parking Assist Display Control	11	0.5	BN	6581	II	—
12	—	—	—	—	—	Not Occupied	12	—	—	—	—	—

X160 Engine Wiring Harness to Fuel Injector Wiring Harness - Left (L8T)

FIGURESIO=6217799 Owner=Owner, Schematics LMD=26-Jan-2023



1825165



1825167

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13595088
Service Connector: 19352907
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Left
OEM Connector: 334826206
Service Connector: Service by Harness - See Part Catalog
Description: 12-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217
II	Not required	J-35616-3 (GY)	No Tool Required

X160 Engine Wiring Harness to Fuel Injector Wiring Harness - Left (L8T)

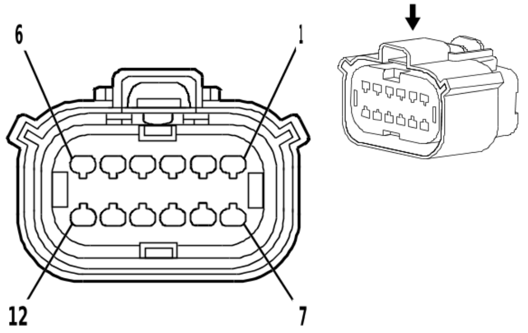
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BN / WH	4901	I	—	Direct Fuel Injector High Voltage Supply Cylinder 1	1	0.8	BN / WH	4901	II	—
2	0.75	GN / GY	4903	I	—	Direct Fuel Injector High Voltage Supply Cylinder 3	2	0.8	GN / GY	4903	II	—
3	0.75	GN / WH	4905	I	—	Direct Fuel Injector High Voltage Supply Cylinder 5	3	0.8	GN / WH	4905	II	—
4	0.75	WH / YE	4907	I	—	Direct Fuel Injector High Voltage Supply Cylinder 7	4	0.8	WH / YE	4907	II	—
5	0.75	BN	4801	I	—	Direct Fuel Injector High Voltage Control Cylinder 1	5	0.8	BN	4801	II	—

X160 Engine Wiring Harness to Fuel Injector Wiring Harness - Left (L8T) (cont'd)

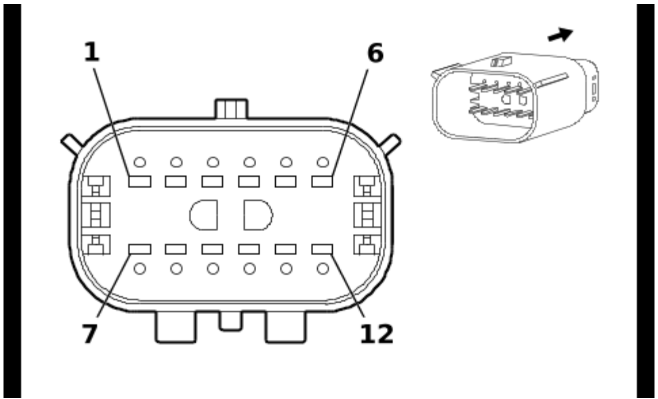
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—
7	0.75	GN	4803	I	—	Direct Fuel Injector High Voltage Control Cylinder 3	7	0.8	GN	4803	II	—
8	0.75	WH / GN	4805	I	—	Direct Fuel Injector High Voltage Control Cylinder 5	8	0.8	WH / GN	4805	II	—
9	0.75	YE / GY	4807	I	—	Direct Fuel Injector High Voltage Control Cylinder 7	9	0.8	YE / GY	4807	II	—
10	0.5	WH / RD	480	I	—	Engine Control Vehicle Sensors 5 Volt Reference 1	10	0.5	BN / RD	480	II	—
11	0.5	BU / WH	10786	I	—	Fuel Rail Pressure Sensor SENT 1 Signal	11	0.5	BU / WH	10786	II	—
12	0.5	BK / YE	548	I	—	Engine Control Sensors Low Reference 1	12	0.5	BK / GN	548	II	—

X161 Engine Wiring Harness to Fuel Injector Wiring Harness - Right (L8T)

FIGURESIO=6217800 Owner=Owner, Schematics LMD=26-Jan-2023



1825165



1825167

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13922706
Service Connector: 19352907
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Fuel Injector Wiring Harness - Right
OEM Connector: 334826211
Service Connector: Service by Harness - See Part Catalog
Description: 12-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217
II	Not required	J-35616-3 (GY)	No Tool Required

X161 Engine Wiring Harness to Fuel Injector Wiring Harness - Right (L8T)

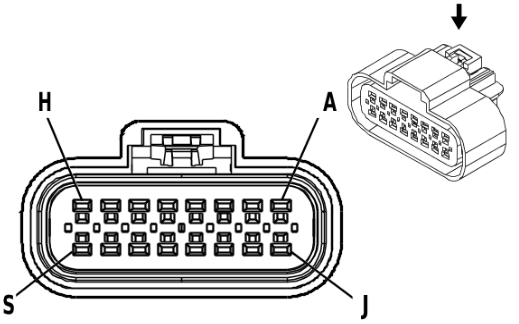
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BU / GY	4902	I	—	Direct Fuel Injector High Voltage Supply Cylinder 2	1	0.8	BU / GY	4902	II	—
2	0.75	BU / WH	4904	I	—	Direct Fuel Injector High Voltage Supply Cylinder 4	2	0.8	BU / WH	4904	II	—
3	0.75	VT / GY	4906	I	—	Direct Fuel Injector High Voltage Supply Cylinder 6	3	0.8	VT / GY	4906	II	—
4	0.75	GY / WH	4908	I	—	Direct Fuel Injector High Voltage Supply Cylinder 8	4	0.8	GY / WH	4908	II	—
5	0.75	BU	4802	I	—	Direct Fuel Injector High Voltage Control Cylinder 2	5	0.8	BU	4802	II	—

X161 Engine Wiring Harness to Fuel Injector Wiring Harness - Right (L8T) (cont'd)

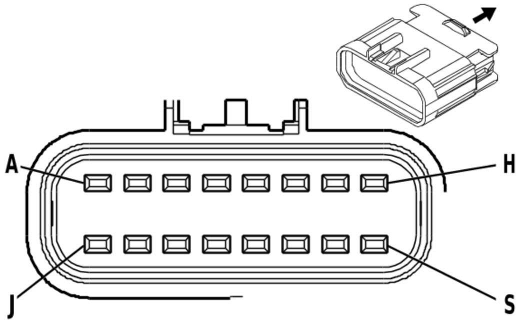
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
6 - 7	—	—	—	—	—	Not Occupied	6 - 7	—	—	—	—	—
8	0.75	GY / BU	4804	I	—	Direct Fuel Injector High Voltage Control Cylinder 4	8	0.8	GY / BU	4804	II	—
9	0.75	VT / GN	4806	I	—	Direct Fuel Injector High Voltage Control Cylinder 6	9	0.8	VT / GN	4806	II	—
10	0.75	GY	4808	I	—	Direct Fuel Injector High Voltage Control Cylinder 8	10	0.8	GY	4808	II	—
11	0.75	VT / BK	7300	I	—	High Pressure Fuel Pump Low Control	11	0.8	VT / BK	7300	II	—
12	0.75	YE	7301	I	—	High Pressure Fuel Pump High Control	12	0.8	YE	7301	II	—

X175P Engine Wiring Harness Chassis to PTO Harness (L5P)

FIGURESIO=6217801 Owner=Owner, Schematics LMD=26-Jan-2023



646383



632345

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 15326863
Service Connector: 19180282
Description: 16-Way F 150 GT Series, Sealed(BK)

Connector Part Information

Harness Type: PTO Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 16-Way M (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368215	J-35616-14 (GN)	J-38125-553
II	Not required	No Tool Required	No Tool Required

X175P Engine Wiring Harness Chassis to PTO Harness (L5P)

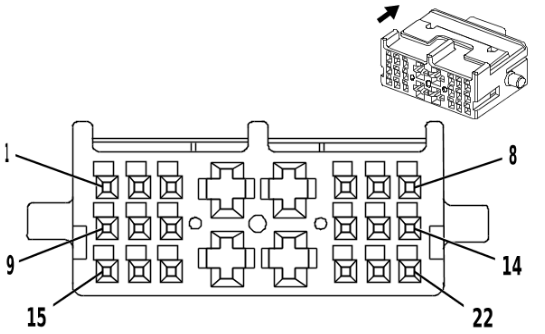
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
A	0.5	GY / GN	6239	I	—	Transmission Power Take-Off Engage/ Disengage Signal Power	A	0.5	GY / GN	6239	II	—
B - C	—	—	—	—	—	Not Occupied	B - C	—	—	—	—	—
D	1.5	BK	450	I	—	Ground	D	1.5	BK	450	II	—
E - F	—	—	—	—	—	Not Occupied	E - F	—	—	—	—	—
G	0.5	WH / BK	8238	I	—	Power Take Off Upfitter Interlock Switch Signal 2	G	0.5	WH / BK	8238	II	—
H	—	—	—	—	—	Not Occupied	H	—	—	—	—	—
J	0.5	WH / GN	6142	I	—	Power Take-Off Engine Shutdown Signal	J	0.5	WH / GN	6142	II	—
K	0.5	RD / VT	2640	I	—	Battery Positive Voltage	K	0.5	RD / VT	2640	II	—
L - M	—	—	—	—	—	Not Occupied	L - M	—	—	—	—	—

X175P Engine Wiring Harness Chassis to PTO Harness (L5P) (cont'd)

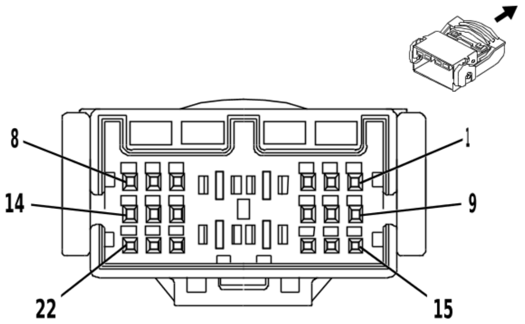
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
N	0.5	VT / GN	4308	I	—	Power Take-Off Remote Throttle Signal	N	0.5	VT / GN	4308	II	—
P	—	—	—	—	—	Not Occupied	P	—	—	—	—	—
R	0.5	VT / WH	239	I	—	Run/Crank Ignition 1 Voltage	R	0.5	VT / WH	239	II	—
S	—	—	—	—	—	Not Occupied	S	—	—	—	—	—

X176 Transmission Case Harness to Transmission Control Harness (MGM / MGU / MKM)

FIGURESIO=6258108 Owner=Owner, Schematics LMD=26-Jan-2023



3977748



3977770

Connector Part Information

Harness Type: Transmission Case

OEM Connector: 1897543-1

Service Connector: Service by Harness - See Part Catalog

Description: 22-Way F 0.64 Micro-Quadlock, 2.8 Micro-Power Series(NA)

Connector Part Information

Harness Type: Transmission Control

OEM Connector: 1897540-1

Service Connector: Service by Harness - See Part Catalog

Description: 22-Way M 0.64 Micro-Quadlock, 2.8 Micro-Power Series(NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required
II	Not required	J-35616-64B (LT BU)	No Tool Required
III	Not required	J-35616-5 (PU)	No Tool Required
IV	Not required	J-35616-65B (LT BU)	No Tool Required

X176 Transmission Case Harness to Transmission Control Harness (MGM / MGU / MKM)

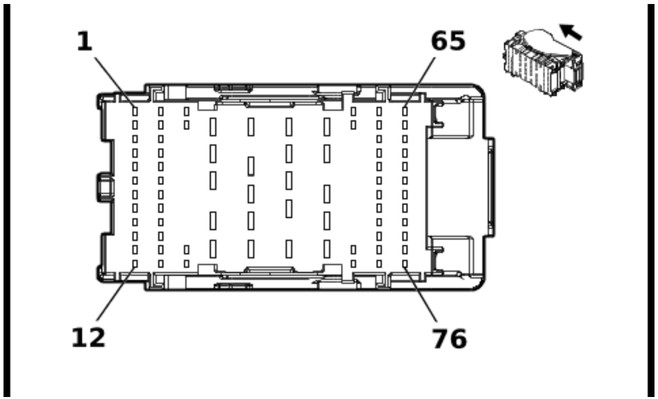
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	VT	7819	II	—	Default Disable Solenoid Control	1	0.5	VT	7819	IV	—
2	0.5	GN / OG	1530	II	—	Transmission Line Pressure Control Solenoid Valve Control	2	0.5	GN / OG	1530	IV	—
3	0.5	GY / BN	422	II	—	Torque Converter Clutch Solenoid Valve Control	3	0.5	GY / BN	422	IV	—
4	0.5	BN	6387	I	—	Transmission High Side Driver 1 Control	4	0.5	BN	6387	III	—
5 - 12	—	—	—	—	—	Not Occupied	5 - 12	—	—	—	—	—
13	0.5	BU / BN	1147	II	—	Transmission Shift Inhibit Signal	13	0.5	BU / BN	1147	IV	—

X176 Transmission Case Harness to Transmission Control Harness (MGM / MGU / MKM) (cont'd)

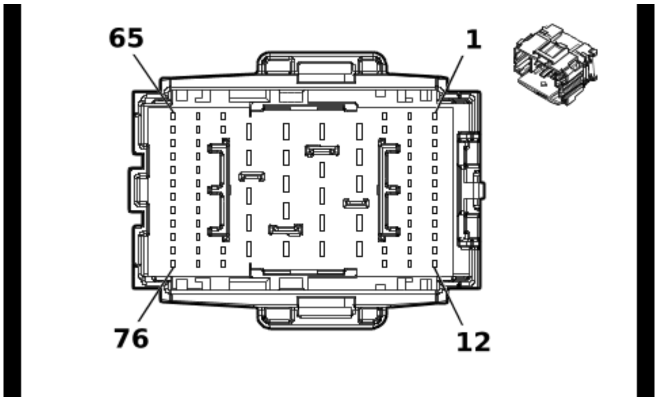
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
14	0.5	BN / YE	585	II	—	Transmission Fluid Temperature Sensor Signal	14	0.5	BN / YE	585	IV	—
15	0.5	BU / GN	6404	II	—	Clutch Solenoid Valve E Control	15	0.5	BU / GN	6404	IV	—
16	0.5	GN / BN	6403	II	—	Clutch Solenoid Valve D Control	16	0.5	GN / BN	6403	IV	—
17	0.5	GY	6402	II	—	Clutch Solenoid Valve C Control	17	0.5	GY	6402	IV	—
18	0.5	WH	6388	I	—	Transmission High Side Driver 2 Control	18	0.5	WH	6388	III	—
19	—	—	—	—	—	Not Occupied	19	—	—	—	—	—
20	0.5	BN / WH	4509	II	—	Transmission Clutch F Control	20	0.5	BN / WH	4509	IV	—
21	0.5	YE / VT	4507	II	—	Transmission Clutch H Control	21	0.5	YE / VT	4507	IV	—
22	0.5	BU / GY	4508	II	—	Transmission Clutch G Control	22	0.5	BU / GY	4508	IV	—

X210 Instrument Panel Wiring Harness to Body Wiring Harness

FIGURESIO=6217802 Owner=Owner, Schematics LMD=26-Jan-2023



6171454



6171465

Connector Part Information

Harness Type: Instrument Panel Wiring Harness

OEM Connector: 13549029

Service Connector: Service by Harness - See Part Catalog

Description: 76-Way F 1.2 Sumitomo, 2.8 YESC Series(BK)

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 13549030

Service Connector: Service by Harness - See Part Catalog

Description: 76-Way M 1.2 Sumitomo, 2.8 YESC Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	84962854	J-35616-12 (L-BU)	J-35616-215A
II	84962855	J-35616-4A (PU)	J-35616-215A
III	84616651	J-35616-13 (L-BU)	J-38125-215A
IV	84888592	J-35616-5 (PU)	J-38125-215A

X210 Instrument Panel Wiring Harness to Body Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	RD / GN	1540	I	—	Battery Positive Voltage	1	0.5	RD / GN	1540	III	—
2	0.5	RD / YE	6540	I	—	Battery Positive Voltage	2	0.5	RD / YE	6540	III	—
3	0.35	BN / OG	3020	I	—	Steering Wheel Air Bag Stage 1 Low Control	3	0.35	BN / OG	3020	III	—
4	0.35	OG / VT	3021	I	—	Steering Wheel Air Bag Stage 1 High Control	4	0.35	OG / VT	3021	III	—
5	0.35	WH / OG	3022	I	—	Steering Wheel Air Bag Stage 2 Low Control	5	0.35	WH / OG	3022	III	—
6	0.35	OG / GN	3023	I	—	Steering Wheel Air Bag Stage 2 High Control	6	0.35	OG / GN	3023	III	—

X210 Instrument Panel Wiring Harness to Body Wiring Harness (cont'd)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
7	0.35	BN / BU	4892	I	—	Auxiliary Battery Relay Control	7	0.35	BN / BU	4892	III	—
8	—	—	—	—	—	Cavity Seal	8	0.35	YE / WH	900	III	—
9	—	—	—	—	—	Cavity Seal	9	0.35	YE / BK	901	III	—
10	—	—	—	—	—	Cavity Seal	10	0.35	YE / BU	902	III	—
13	0.35	BN / BK	3552	I	—	Interior Passive Entry Antenna 1 High Signal	13	0.35	BN / BK	3552	III	—
14	0.35	WH	3553	I	—	Interior Passive Entry Antenna 1 Low Signal	14	0.35	WH	3553	III	—
15	0.35	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	15	0.5	WH	4100	III	—
16	0.35	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	16	0.5	BU / VT	4101	III	—
17	0.35	WH	4976	I	—	AUTOSAR CAN Bus [-] 3 Serial Data	17	0.5	WH	4976	III	—
18	0.35	BU / BK	4977	I	—	AUTOSAR CAN Bus [+] 3 Serial Data	18	0.5	BU / BK	4977	III	—
19	0.5	RD / GN	7740	I	—	Battery Positive Voltage	19	0.5	RD / GN	7740	III	—
21	0.35	BU / YE	4984	I	—	AUTOSAR CAN Bus [-] 5 Serial Data	21	0.5	BU / YE	4984	III	—
22	0.35	BU / WH	4985	I	—	AUTOSAR CAN Bus [+] 5 Serial Data	22	0.5	BU / WH	4985	III	—
23	0.35	WH	4986	I	—	AUTOSAR CAN Bus [-] 1 Serial Data	23	0.5	WH	4986	III	—
24	0.35	BU	4987	I	—	AUTOSAR CAN Bus [+] 1 Serial Data	24	0.5	BU	4987	III	—
27	0.35	BN / BK	4996	I	—	Immobilizer Antenna Signal [+]	27	0.35	BN / BK	4996	III	—
28	0.35	WH / GY	4997	I	—	Immobilizer Antenna Low Signal	28	0.35	WH / GY	4997	III	—
29	2.5	RD / BN	4142	II	—	Primary Fused Battery Positive Voltage	29	2.5	RD / BN	4142	IV	—
30	0.35	GY	1715	II	—	Windshield Wiper Switch High Signal	30	0.35	GY	1715	IV	—

X210 Instrument Panel Wiring Harness to Body Wiring Harness (cont'd)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
31	0.5	GN / YE	2731	II	—	Brake System Control Module LIN Bus 1	31	0.5	GN / YE	2731	IV	—
32	0.35 0.5	BU BU	4987 4987	II II	UD5+ UD7 - UD5- UD7	AUTOSAR CAN Bus [+] 1 Serial Data AUTOSAR CAN Bus [+] 1 Serial Data	32	0.5	BU	4987	IV	—
33	0.35 0.5	WH WH	4986 4986	II II	UD5+ UD7 - UD5- UD7	AUTOSAR CAN Bus [-] 1 Serial Data AUTOSAR CAN Bus [-] 1 Serial Data	33	0.5	WH	4986	IV	—
35	0.75	GN / BK	116	II	—	Left Rear Speaker [-] Control	35	0.75	GN / BK	116	IV	—
36	0.75	GN	199	II	—	Left Rear Speaker [+] Control	36	0.75	GN	199	IV	—
37	0.75	BN / BU	118	II	—	Left Front Speaker [-] Control 1 Left Front Speaker [-] Control 1	37	0.75	BN / BU	118	IV	—
38	0.75	BU	201	II	—	Left Front Speaker 1 [+] Control Left Front Speaker 1 [+] Control	38	0.75	BU	201	IV	—
40	0.35	BU / WH	3119	II	—	Roof Rail Air Bag Disable Switch Signal	40	0.35	BU / WH	3119	IV	—
41	0.35	BN / WH	3895	II	—	Roof Rail Air Bag Disable Switch Low Reference	41	0.35	BN / WH	3895	IV	—
45	0.35	GN / VT	4786	II	—	Dome/Reading Lamp Enable Signal	45	0.5	GN / VT	4786	IV	—
46	0.35	GN / BN	507	II	—	Wait To Start Indicator Control	46	0.35	GN / BN	507	IV	—
48	0.5	YE / VT	6191	II	—	Power Rear Window Switch Open Signal	48	0.5	YE / VT	6191	IV	—
49	0.5	WH	6192	I	—	Sliding Rear Window Switch Close Signal	49	0.5	WH	6192	III	—
50	0.5	YE	6817	I	—	LED Backlight Dimming Control 1	50	0.5	YE	6817	III	—

X210 Instrument Panel Wiring Harness to Body Wiring Harness (cont'd)

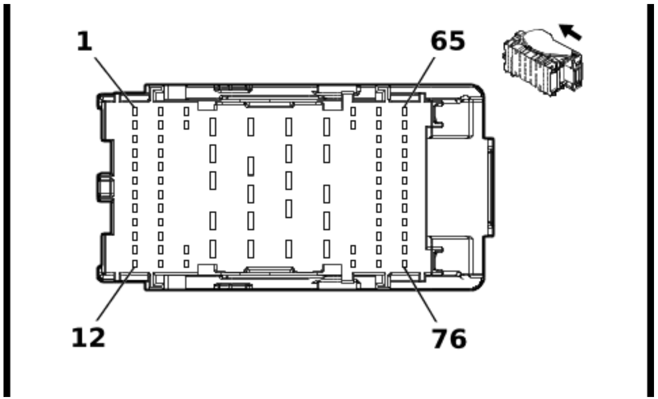
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
51	0.35	WH / GY	7297	I	—	Minor Endgate High Relay Control	51	0.75	WH / GY	7297	III	—
53	0.5	RD / VT	7140	I	—	Battery Positive Voltage	53	0.5	RD / VT	7140	III	—
54	0.35	WH / GN	7728	I	—	Major Endgate High Relay Control	54	0.75	WH / GN	7728	III	—
55	0.35	BU / VT	7729	I	—	Major Endgate Low Relay Control	55	0.75	BU / VT	7729	III	—
56	0.5	VT	801	I	—	Retained Accessory Power Control	56	0.35	VT	801	III	—
57	0.5	BN / YE	820	I	—	Center High Mounted Stop Lamp Supply Voltage Center High Mounted Stop Lamp Supply Voltage	57	0.35 0.5	BN / YE BN / YE	820 820	III III	UET - UET
58	0.35	GN / BU	2733	I	—	Brake System Control Module LIN Bus 2	58	0.5	GN / BU	2733	III	—
59	0.5	RD / VT	2640	I	—	Battery Positive Voltage	59	0.5	RD / VT	2640	III	—
60	0.35	BU / YE	4984	I	—	AUTOSAR CAN Bus [-] 5 Serial Data	60	0.5	BU / YE	4984	III	—
61	0.35	BU / WH	4985	I	—	AUTOSAR CAN Bus [+] 5 Serial Data	61	0.5	BU / WH	4985	III	—
62	0.35	YE	10280	I	—	Private Steering Angle CAN Bus [+] Serial Data	62	0.35	YE	10280	III	—
63	0.35	BU / WH	10279	I	—	Private Steering Angle CAN Bus [-] Serial Data	63	0.35	BU / WH	10279	III	—
64	0.35	GN / BN	2087	I	—	Multi-axis Acceleration Sensor Supply Voltage	64	0.35	GN / BN	2087	III	—
65	0.35	GN / GY	817	I	—	Vehicle Speed Signal	65	0.35	GN / GY	817	III	—
66	0.35	WH / GY	2935	I	—	Task Lamp Switch Signal	66	0.35	WH / GY	2935	III	—
67	0.5	RD / YE	2340	I	—	Battery Positive Voltage	67	0.5	RD / YE	2340	III	—
68	0.5	WH / VT	1430	I	—	Exterior Courtesy Lamp Control	68	0.5	WH / VT	1430	III	—

X210 Instrument Panel Wiring Harness to Body Wiring Harness (cont'd)

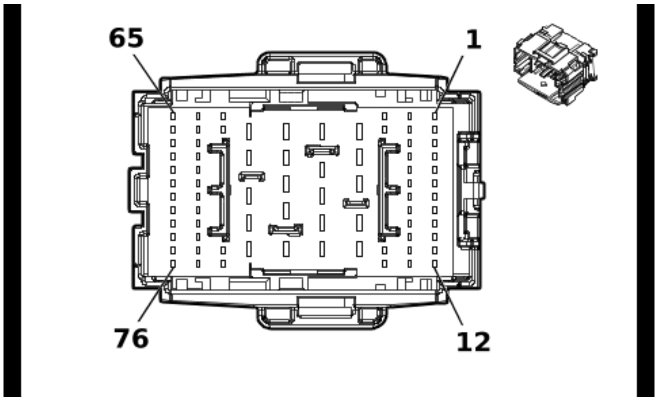
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
69	0.5	GN / WH	2854	I	—	Body Control Module LIN Bus 8	69	0.35	GN / WH	2854	III	—
70	0.5	BU / BN	6807	I	—	DC/AC Inverter Control	70	0.5	BU / BN	6807	III	—
71	0.5	VT / RD	4049	I	—	AC Power Outlet Sensor High Reference	71	0.5	VT / RD	4049	III	—
73	0.5	BN / GN	4246	I	—	Identification Lamp Control	73	0.5	BN / GN	4246	III	—
74	0.35	BARE	10116	I	—	AC Outlet Low Reference	74	0.35	BARE	10116	III	—
75	0.75	BK	10117	I	—	AC Outlet Phase A Control	75	0.75	BK	10117	III	—
76	0.75	RD	10118	I	—	AC Outlet Phase B Control	76	0.75	RD	10118	III	—

X211 Instrument Panel Wiring Harness to Body Wiring Harness

FIGURESIO=6217803 Owner=Owner, Schematics LMD=26-Jan-2023



6171454



6171465

Connector Part Information

Harness Type: Instrument Panel Wiring Harness

OEM Connector: 13549029

Service Connector: Service by Harness - See Part Catalog

Description: 76-Way F 1.2 Sumitomo, 2.8 YESC Series(BK)

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 13549030

Service Connector: Service by Harness - See Part Catalog

Description: 76-Way M 1.2 Sumitomo, 2.8 YESC Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	84962854	J-35616-12 (L-BU)	J-35616-215A
II	84962855	J-35616-4A (PU)	J-35616-215A
III	13575824	J-35616-5 (PU)	J-38125-215A
IV	19355729	J-35616-5 (PU)	J-38125-215A
V	19355731	J-35616-5 (PU)	J-38125-215A
VI	84616651	J-35616-13 (L-BU)	J-38125-215A
VII	84888592	J-35616-5 (PU)	J-38125-215A
VIII	Not Available	J-35616-13 (L-BU)	J-38125-215A

X211 Instrument Panel Wiring Harness to Body Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	VT / BK	339	I	—	Run/Crank Ignition 1 Voltage	1	0.5	VT / BK	339	VI	—
2	0.35	BU / VT	807	I	—	Ignition Off/ Accessory Ignition Voltage	2	0.35	BU / VT	807	VIII	—
4	0.5 0.35	GN / WH GN / WH	24 24	I I	DD8 - DD8	Backup Lamp Control Backup Lamp Control	4	0.5	GN / WH	24	VI	—
5	0.35	OG / WH	3024	I	—	Passenger Instrument Panel Air Bag Stage 1 Low Control	5	0.35	OG / WH	3024	VIII	—

X211 Instrument Panel Wiring Harness to Body Wiring Harness (cont'd)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
6	0.35	YE / OG	3025	I	—	Passenger Instrument Panel Air Bag Stage 1 High Control	6	0.35	YE / OG	3025	VIII	—
7	0.35	OG / VT	3026	I	—	Passenger Instrument Panel Air Bag Stage 2 Low Control	7	0.35	OG / VT	3026	VIII	—
8	0.35	GY / OG	3027	I	—	Passenger Instrument Panel Air Bag Stage 2 High Control	8	0.35	GY / OG	3027	VIII	—
10	0.35	YE	7115	I	—	Rear Axle Differential Lock Indicator Control	10	0.35	YE	7115	VIII	—
11	0.35	YE / GN	7122	I	—	Axle Differential Lock Switch Signal	11	0.35	YE / GN	7122	VIII	—
16	0.35	GN / BN	3005	I	—	Active Noise Cancellation Microphone 1 Signal	16	0.35	GN / BN	3005	VIII	—
17	0.35	GN / BK	3008	I	—	Active Noise Cancellation Microphone 1 Feedback Signal	17	0.35	GN / BK	3008	VIII	—
25	0.35	BU	4987	I	—	AUTOSAR CAN Bus [+] 1 Serial Data	25	0.5	BU	4987	VI	—
26	0.35	WH	4986	I	—	AUTOSAR CAN Bus [-] 1 Serial Data	26	0.5	WH	4986	VI	—
29	1	GN / YE	6840	II	—	Auxiliary Device 2 Switched Voltage	29	1	GN / YE	6840	IV	—
32	0.5	BU / BK	1053	II	—	Center High Mounted Stop Lamp Control 3	32	0.5	BU / BK	1053	III	—
33	0.75	WH	46	II	—	Right Rear Speaker [+] Control	33	0.75	WH	46	IV	—
34	0.75	BU / BK	115	II	—	Right Rear Speaker [-] Control	34	0.75	BU / BK	115	IV	—
35	0.75	YE / BK	117	II	—	Right Front Speaker [-] Control 1	35	0.75	YE / BK	117	IV	—
36	0.75	YE	200	II	—	Right Front Speaker 1 [+] Control	36	0.75	YE	200	IV	—
37	0.75	YE / BK	117	II	—	Right Front Speaker [-] Control 1	37	0.75	YE / BK	117	IV	—

X211 Instrument Panel Wiring Harness to Body Wiring Harness (cont'd)

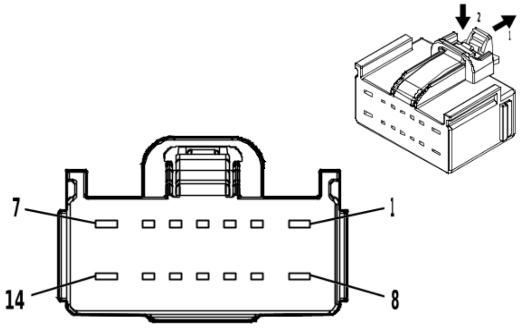
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
38	0.75	YE	200	II	—	Right Front Speaker 1 [+] Control	38	0.75	YE	200	IV	—
39	0.75	YE / BK	117	II	—	Right Front Speaker [-] Control 1	39	0.75	YE / BK	117	VII	—
40	0.75	YE	200	II	—	Right Front Speaker 1 [+] Control	40	0.75	YE	200	VII	—
41	0.75	WH / YE	1853	II	—	Right Front Midrange Speaker [+] Control	41	0.75	WH / YE	1853	IV	—
42	0.75	BN / BK	1953	II	—	Right Front Midrange Speaker [-] Control	42	0.75	BN / BK	1953	IV	—
43	0.75	YE / WH	1860	II	—	Front Center Speaker [+] Control	43	0.75	YE / WH	1860	IV	—
44	0.75	BU / YE	1960	II	—	Front Center Speaker [-] Control	44	0.75	BU / YE	1960	IV	—
45	0.75	BU / VT	1857	II	—	Left Front Midrange Speaker [+] Control	45	0.75	BU / VT	1857	IV	—
46	0.75	BU / BN	1957	II	—	Left Front Midrange Speaker [-] Control	46	0.75	BU / BN	1957	IV	—
47	2	BU	47	II	—	Trailer Auxiliary Control	47	2	BU	47	V	—
48	2.5	BK / WH	1051	II	—	Signal Ground Signal Ground	48	0.5 2.5	BK / WH BK / WH	1051 1051	III V	D07- IOK/ D07- UQA-UQS D07+ IOK+ UQA/ D07 + IOK+ UQS
49	0.35	GN / WH	488	I	—	Power Take-Off Control Switch Signal	49	0.5	GN / WH	488	VI	—
50	0.35	BN / GN	4311	I	—	Power Take-Off Enable Cabin Switch Normally Closed Signal	50	0.5	BN / GN	4311	VI	—
51	0.35 0.5	BU / YE BU / YE	4979 4979	I I	(GF2/ GF5/ GFF) + UEU - GF2- GF5- GFF + UEU	AUTOSAR CAN Bus [+] 2 Serial Data AUTOSAR CAN Bus [+] 2 Serial Data	51	0.5	BU / YE	4979	VI	—

X211 Instrument Panel Wiring Harness to Body Wiring Harness (cont'd)

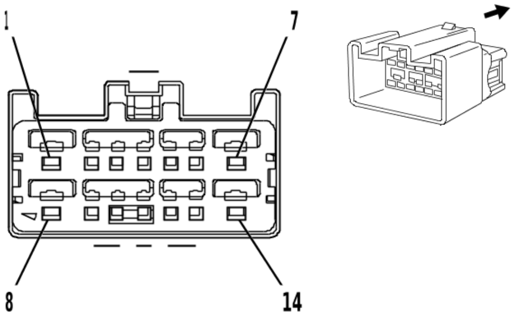
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
52	0.35 0.5	WH WH	4978 4978	I I	(GF2/ GF5/ GFF) + UEU - GF2- GF5- GFF + UEU	AUTOSAR CAN Bus [-] 2 Serial Data AUTOSAR CAN Bus [-] 2 Serial Data	52	0.5	WH	4978	VI	—
54	0.5	GN / VT	5199	I	—	Run/Crank Relay Coil Control	54	0.5	GN / VT	5199	VI	—
60	0.35	YE / WH	1690	I	—	Mirror Dimming Signal	60	0.35	YE / WH	1690	VI	—
61	0.35	BK / YE	1691	I	—	Automatic Day/Night Mirror Low Reference	61	0.35	BK / YE	1691	VI	—

X213 Auxiliary Fuse Block Wiring Harness to Instrument Panel Wiring Harness (9L7)

FIGURESIO=6217804 Owner=Owner, Schematics LMD=26-Jan-2023



4934172



1283905

Connector Part Information

Harness Type: Auxiliary Fuse Block Wiring Harness
OEM Connector: 33366376
Service Connector: Service by Harness - See Part Catalog
Description: 14-Way F 1.5, 2.8 YESC Series(GY)

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 10846900
Service Connector: 88956523
Description: 14-Way M 1.5, 2.8 YESC Series(L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	13578907	J-35616-3 (GY)	J-38125-215A
IV	13578908	J-35616-5 (PU)	J-38125-11A

X213 Auxiliary Fuse Block Wiring Harness to Instrument Panel Wiring Harness (9L7)

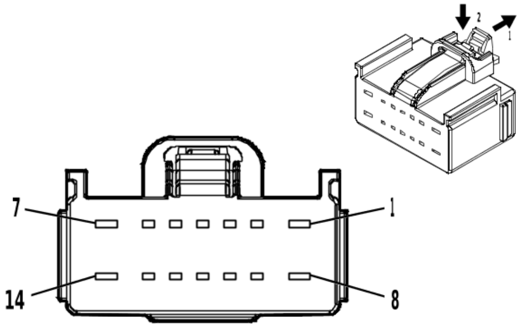
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BK / WH	851	II	—	Signal Ground	1	2.5	BK	1050	IV	—
2	—	—	—	—	—	Not Occupied	2	—	—	—	—	—
3	0.35	YE	6817	I	—	LED Backlight Dimming Control 1	3	0.35	YE	6817	III	—
4	—	—	—	—	—	Not Occupied	4	—	—	—	—	—
5	0.5	WH / BU	3691	I	—	Trailer Brake Apply Signal	5	0.35	WH / BU	3691	III	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—
7	2.5	RD / BN	4142	II	—	Primary Fused Battery Positive Voltage	7	2.5	RD / BN	4142	IV	—

X213 Auxiliary Fuse Block Wiring Harness to Instrument Panel Wiring Harness (9L7) (cont'd)

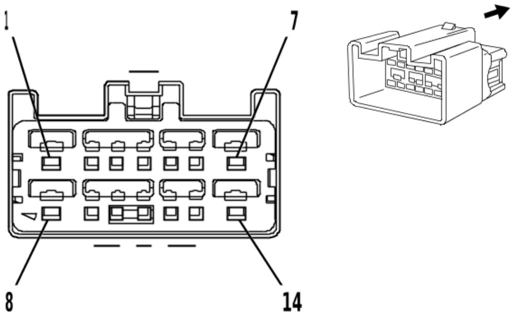
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
8	2.5	VT / BU	10735	II	—	Upfitter Accessory 5 Supply Voltage	8	2.5	VT / BU	10735	IV	—
9	—	—	—	—	—	Out of Park Signal	9	0.35	YE	6812	III	—
10	—	—	—	—	—	Vehicle Speed Signal	10	0.35	GN / GY	817	III	—
11	0.35	WH	6816	I	—	Indicator Dimming Control	11	0.35	WH	6816	III	—
12	—	—	—	—	—	Not Occupied	12	—	—	—	—	—
13	0.5	VT / BK	339	I	—	Run/Crank Ignition 1 Voltage	13	0.5	VT / BK	339	III	—
14	2	BU	47	II	—	Trailer Auxiliary Control	14	2	BU	47	IV	—

X213 Trailer Wiring Harness Extension Harness to Instrument Panel Wiring Harness (-JL1&Z82)

FIGURESIO=6217805 Owner=Owner, Schematics LMD=26-Jan-2023



4934172



1283905

Connector Part Information

Harness Type: Trailer Wiring Harness Extension Harness
OEM Connector: 33366376
Service Connector: Service by Harness - See Part Catalog
Description: 14-Way F 1.5, 2.8 YESC Series(GY)

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 10846900
Service Connector: 88956523
Description: 14-Way M 1.5, 2.8 YESC Series(L-GY)

Terminal Part Information

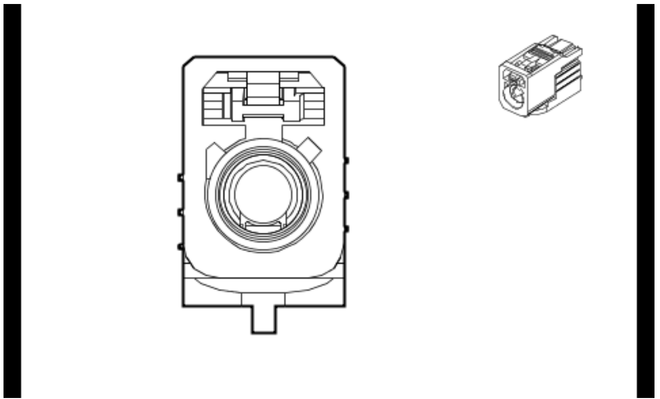
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	13578907	J-35616-3 (GY)	J-38125-215A
IV	13578908	J-35616-5 (PU)	J-38125-11A

X213 Trailer Wiring Harness Extension Harness to Instrument Panel Wiring Harness (-JL1&Z82)

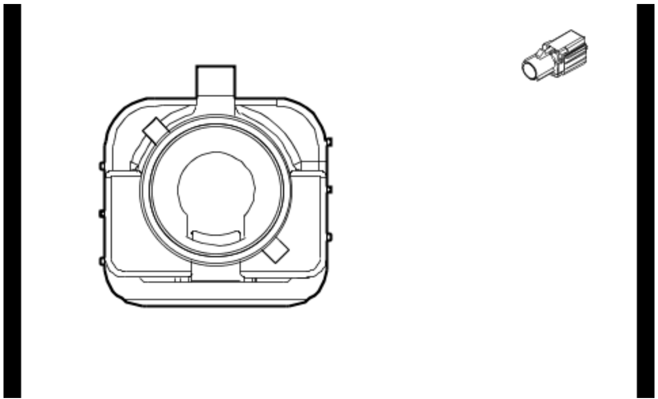
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	WH	22	II	—	Trailer Ground	1	2.5	BK	1050	IV	—
2 - 4	—	—	—	—	—	Not Occupied	2 - 4	—	—	—	—	—
5	0.5	WH / BU	3691	I	—	Trailer Brake Apply Signal	5	0.35	WH / BU	3691	III	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—
7	2.5	RD / BN	4142	II	—	Primary Fused Battery Positive Voltage	7	2.5	RD / BN	4142	IV	—
8 - 13	—	—	—	—	—	Not Occupied	8 - 13	—	—	—	—	—
14	2	BU	47	II	—	Trailer Auxiliary Control	14	2	BU	47	IV	—

X217 Body Wiring Harness to Instrument Panel Wiring Harness (UVB)

FIGURESIO=6217806 Owner=Owner, Schematics LMD=26-Jan-2023



5633890



5873701

Connector Part Information

Harness Type: Body Wiring Harness COAX

OEM Connector: 33351013

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type(BU)

Connector Part Information

Harness Type: Instrument Panel Wiring Harness COAX

OEM Connector: 33351038

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way M Coax Type(BU)

Terminal Part Information

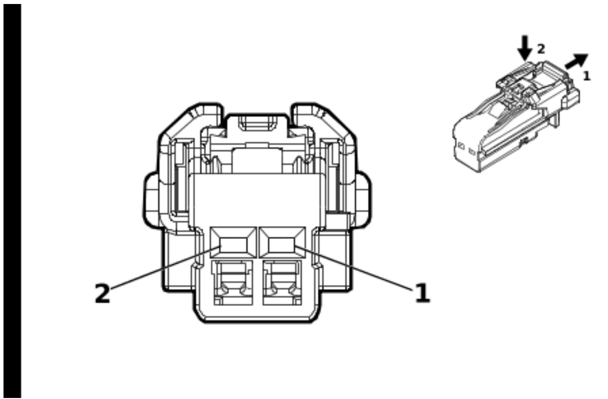
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X217 Body Wiring Harness to Instrument Panel Wiring Harness (UVB)

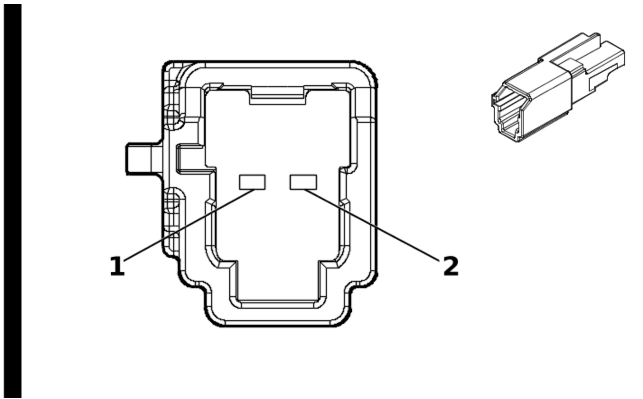
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	Coax Cable	—	I	—	Video Processing Module Coaxial Video Signal	—	—	Coax Cable	—	I	—

X218 Instrument Panel Wiring Harness to Body Wiring Harness (IOK)

FIGURESIO=6217807 Owner=Owner, Schematics LMD=26-Jan-2023



4115691



5355341

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35311666
Service Connector: 87816612
Description: 2-Way F 1.2 MCON Series(BK)

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35258943
Service Connector: 84815531
Description: 2-Way M 1.2 MCON Series(BK)

Terminal Part Information

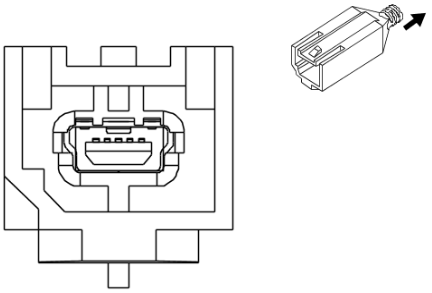
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-13 (L-BU)	No Tool Required

X218 Instrument Panel Wiring Harness to Body Wiring Harness (IOK)

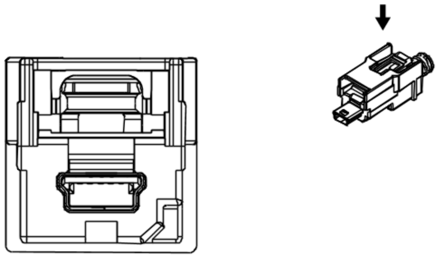
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	GN	7214	I	—	Ethernet Bus 6 [-]	1	0.35	GN	7214	II	—
2	0.35	YE	7215	I	—	Ethernet Bus 6 [+]	2	0.35	YE	7215	II	—

X226 Front Floor Console Wiring Harness to Instrument Panel Wiring Harness (UBC&UBD)

FIGURESIO=6217808 Owner=Owner, Schematics LMD=26-Jan-2023



3273655



2807425

Connector Part Information

Harness Type: Front Floor Console Wiring Harness USB

OEM Connector: 13699757

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way F 2.0 Mini-B USB Type(BK)

Connector Part Information

Harness Type: Instrument Panel Wiring Harness USB

OEM Connector: 111014-9016

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way M 2.0 Mini-B USB Type(BK)

Terminal Part Information

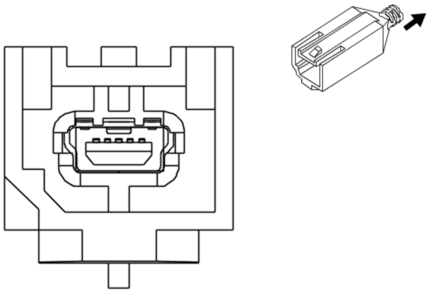
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X226 Front Floor Console Wiring Harness to Instrument Panel Wiring Harness (UBC&UBD)

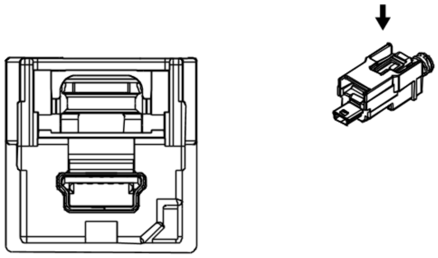
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	USB	—	I	—	USB Serial Data	—	—	USB	—	I	—

X226 Front Floor Console Wiring Harness to Instrument Panel Wiring Harness (UBC-UBD)

FIGURESIO=6217809 Owner=Owner, Schematics LMD=26-Jan-2023



3273655



2807425

Connector Part Information

Harness Type: Front Floor Console Wiring Harness USB

OEM Connector: Not Available

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way F

Connector Part Information

Harness Type: Instrument Panel Wiring Harness USB

OEM Connector: 13576672

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way M 2.0 Mini-B USB Type(BK)

Terminal Part Information

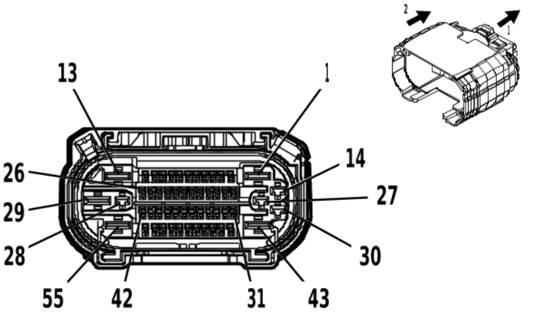
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X226 Front Floor Console Wiring Harness to Instrument Panel Wiring Harness (UBC-UBD)

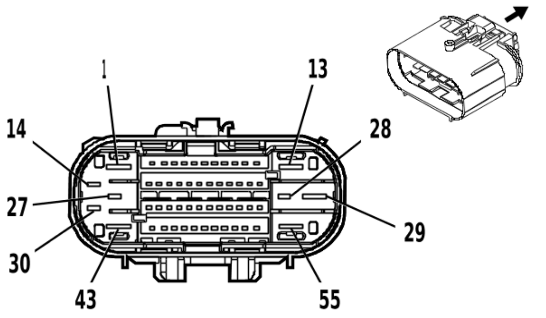
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	USB	—	I	—	USB Serial Data	—	—	USB	—	I	—

X227 Front Floor Console Wiring Harness to Body Wiring Harness (D07)

FIGURESIO=6217810 Owner=Owner, Schematics LMD=26-Jan-2023



4992168



4993301

Connector Part Information

Harness Type: Front Floor Console Wiring Harness

OEM Connector: 35016652

Service Connector: Service by Harness - See Part Catalog

Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 35205173

Service Connector: 84727364

Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-35 (VT)	No Tool Required
III	Not required	J-35616-43 (RD)	No Tool Required
IV	84847992	J-35616-32 (OG)	J-38125-36
V	84867140	J-35616-13 (L-BU)	J-38125-215A
VI	84992391	J-35616-5 (PU)	J-38125-215A

X227 Front Floor Console Wiring Harness to Body Wiring Harness (D07)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	—	—	—	—	Not Occupied	1	—	—	—	—	—
2	1	BK	9003	I	—	Cavity Seal	2	1	BK	9003	V	—
3 - 5	—	—	—	—	—	Not Occupied	3 - 5	—	—	—	—	—
6	0.5	RD / VT	2640	I	—	Battery Positive Voltage	6	0.5	RD / VT	2640	V	—
7	0.35	GN / BU	2733	I	—	Brake System Control Module LIN Bus 2	7	0.5	GN / BU	2733	V	—
8	—	—	—	—	—	Not Occupied	8	—	—	—	—	—
9	0.5	RD / BU	1240	I	—	Battery Positive Voltage	9	0.5	RD / BU	1240	V	—

X227 Front Floor Console Wiring Harness to Body Wiring Harness (D07) (cont'd)

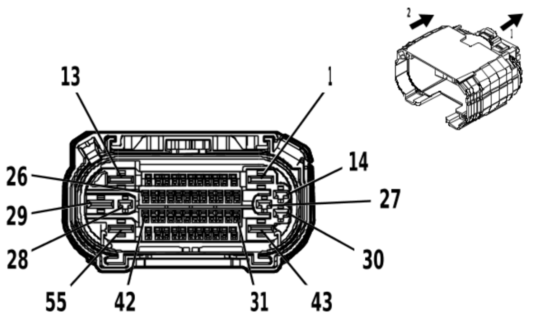
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
10	0.35	BN / BK	3552	I	—	Interior Passive Entry Antenna 1 High Signal	10	0.35	BN / BK	3552	V	—
11	0.35	WH	3553	I	—	Interior Passive Entry Antenna 1 Low Signal	11	0.35	WH	3553	V	—
12	1	BK	9003	I	—	Cavity Seal	12	1	BK	9003	V	—
13	—	—	—	—	—	Not Occupied	13	—	—	—	—	—
14	0.75	BK	10117	II	—	AC Outlet Phase A Control	14	0.75	BK	10117	VI	—
15 - 21	—	—	—	—	—	Not Occupied	15 - 21	—	—	—	—	—
22	0.5	BU / YE	4984	I	—	AUTOSAR CAN Bus [-] 5 Serial Data	22	0.5	BU / YE	4984	V	—
23	0.5	BU / WH	4985	I	—	AUTOSAR CAN Bus [+] 5 Serial Data	23	0.5	BU / WH	4985	V	—
24	0.5	BU / YE	4984	I	—	AUTOSAR CAN Bus [-] 5 Serial Data	24	0.5	BU / YE	4984	V	—
25	0.5	BU / WH	4985	I	—	AUTOSAR CAN Bus [+] 5 Serial Data	25	0.5	BU / WH	4985	V	—
26	0.5	BK	1350	I	—	Ground	26	0.75	BK	1350	V	—
27	0.5	WH	10116	II	—	AC Outlet Low Reference	27	0.5	WH	10116	VI	—
28 - 29	—	—	—	—	—	Not Occupied	28 - 29	—	—	—	—	—
30	0.75	RD	10118	II	—	AC Outlet Phase B Control	30	0.75	RD	10118	VI	—
31	—	—	—	—	—	Not Occupied	31	—	—	—	—	—
32	0.35	BN / BK	4996	I	—	Immobilizer Antenna Signal [+]	32	0.35	BN / BK	4996	V	—
33	0.35	WH / GY	4997	I	—	Immobilizer Antenna Low Signal	33	0.35	WH / GY	4997	V	—
34 - 35	—	—	—	—	—	Not Occupied	34 - 35	—	—	—	—	—
36	0.5	RD / YE	2340	I	—	Battery Positive Voltage	36	0.5	RD / YE	2340	V	—
37	0.5	GN / VT	2857	I	—	Body Control Module LIN Bus 11	37	0.35	GN / VT	2857	V	—
38	0.5	VT / RD	4049	I	—	AC Power Outlet Sensor High Reference	38	0.5	VT / RD	4049	V	—

X227 Front Floor Console Wiring Harness to Body Wiring Harness (D07) (cont'd)

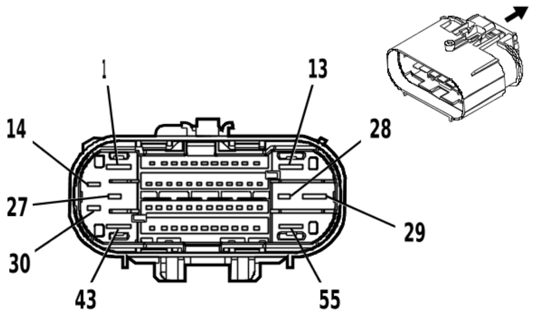
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
39 - 41	—	—	—	—	—	Not Occupied	39 - 41	—	—	—	—	—
42	0.5	BU / BN	6807	I	—	DC/AC Inverter Control	42	0.5	BU / BN	6807	V	—
43	0.5	GN / VT	4786	III	—	Dome/Reading Lamp Enable Signal	43	0.5	GN / VT	4786	IV	—
44	0.75	YE	6817	I	—	LED Backlight Dimming Control 1	44	0.75	YE	6817	V	—
45 - 46	—	—	—	—	—	Not Occupied	45 - 46	—	—	—	—	—
47	0.5	BK	1350	I	—	Ground	47	0.75	BK	1350	V	—
48	0.35	VT	4701	I	—	Retained Accessory Power Control	48	0.35	VT	4701	V	—
49 - 50	—	—	—	—	—	Not Occupied	49 - 50	—	—	—	—	—
51	0.5	BK / WH	1451	I	—	Signal Ground	51	0.75	BK / WH	1451	V	—
52	0.5	BK / WH	1051	I	—	Signal Ground Signal Ground	52	0.75 0.5	BK / WH BK / WH	1051 1051	V V	D07+ IOK+ UQA/ D07 + IOK+ UQS D07- IOK/ D07- UQA-UQS
53	—	—	—	—	—	Not Occupied	53	—	—	—	—	—
54	1	BK	9003	I	—	Cavity Seal	54	1	BK	9003	V	—
55	—	—	—	—	—	Not Occupied	55	—	—	—	—	—

X227 Front Seat Wiring Harness - Center to Body Wiring Harness (-D07)

FIGURESIO=6217811 Owner=Owner, Schematics LMD=26-Jan-2023



4992168



4993301

Connector Part Information

Harness Type: Front Seat Wiring Harness - Center

OEM Connector: 35016652

Service Connector: Service by Harness - See Part Catalog

Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 35205173

Service Connector: 84727364

Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-35 (VT)	No Tool Required
III	84867140	J-35616-13 (L-BU)	J-38125-215A
IV	84992391	J-35616-5 (PU)	J-38125-215A

X227 Front Seat Wiring Harness - Center to Body Wiring Harness (-D07)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	—	—	—	—	Not Occupied	1	—	—	—	—	—
2	0.75	BK	9003	I	—	Cavity Seal	2	1	BK	9003	III	—
3 - 6	—	—	—	—	—	Not Occupied	3 - 6	—	—	—	—	—
7	—	—	—	—	—	Brake System Control Module LIN Bus 2	7	0.5	GN / BU	2733	III	—
8 - 11	—	—	—	—	—	Not Occupied	8 - 11	—	—	—	—	—
12	0.75	BK	9003	I	—	Cavity Seal	12	1	BK	9003	III	—
13	—	—	—	—	—	Not Occupied	13	—	—	—	—	—
14	0.75	BK	10117	II	—	AC Outlet Phase A Control	14	0.75	BK	10117	IV	—
15	—	—	—	—	—	Not Occupied	15	—	—	—	—	—

X227 Front Seat Wiring Harness - Center to Body Wiring Harness (-D07) (cont'd)

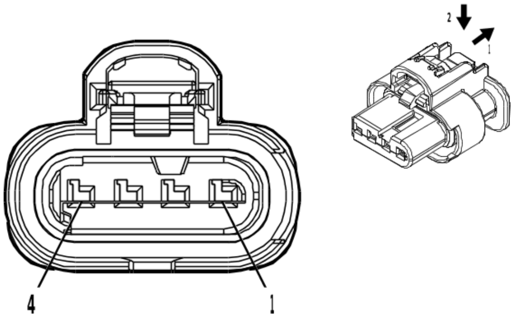
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
16	0.35	WH	4976	I	—	AUTOSAR CAN Bus [-] 3 Serial Data	16	—	—	—	—	—
17	0.35	BU / BK	4977	I	—	AUTOSAR CAN Bus [+] 3 Serial Data	17	—	—	—	—	—
18	0.35	WH	4976	I	—	AUTOSAR CAN Bus [-] 3 Serial Data	18	—	—	—	—	—
19	0.35	BU / BK	4977	I	—	AUTOSAR CAN Bus [+] 3 Serial Data	19	—	—	—	—	—
20 - 21	—	—	—	—	—	Not Occupied	20 - 21	—	—	—	—	—
22	0.5	BU / YE	4984	I	—	AUTOSAR CAN Bus [-] 5 Serial Data	22	—	—	—	—	—
23	0.5	BU / WH	4985	I	—	AUTOSAR CAN Bus [+] 5 Serial Data	23	—	—	—	—	—
24	0.5	BU / YE	4984	I	—	AUTOSAR CAN Bus [-] 5 Serial Data	24	—	—	—	—	—
25	0.5	BU / WH	4985	I	—	AUTOSAR CAN Bus [+] 5 Serial Data	25	—	—	—	—	—
26	0.75	BK	1050	I	—	Ground	26	0.75	BK	1350	III	—
27	0.35	BK	10116	II	—	AC Outlet Low Reference	27	0.5	WH	10116	IV	—
28 - 29	—	—	—	—	—	Not Occupied	28 - 29	—	—	—	—	—
30	0.75	RD	10118	II	—	AC Outlet Phase B Control	30	0.75	RD	10118	IV	—
31	—	—	—	—	—	Not Occupied	31	—	—	—	—	—
32	0.5	BN / BK	4996	I	—	Immobilizer Antenna Signal [+]	32	0.35	BN / BK	4996	III	—
33	0.5	WH / GY	4997	I	—	Immobilizer Antenna Low Signal	33	0.35	WH / GY	4997	III	—
34 - 37	—	—	—	—	—	Not Occupied	34 - 37	—	—	—	—	—
38	0.75	VT / RD	4049	I	—	AC Power Outlet Sensor High Reference	38	0.5	VT / RD	4049	III	—
39	—	—	—	—	—	Not Occupied	39	—	—	—	—	—
40	0.35	WH	4055	I	—	Private Serial Data Powertrain CAN Bus [+] Serial Data	40	—	—	—	—	—

X227 Front Seat Wiring Harness - Center to Body Wiring Harness (-D07) (cont'd)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
41	—	—	—	—	—	Not Occupied	41	—	—	—	—	—
42	0.75	BU / BN	6807	I	—	DC/AC Inverter Control	42	0.5	BU / BN	6807	III	—
43	—	—	—	—	—	Not Occupied	43	—	—	—	—	—
44	0.75 0.75	YE BK	6817 6817	I I	— —	LED Backlight Dimming Control 1 LED Backlight Dimming Control 1	44	0.75	YE	6817	III	—
45	0.35	BU / GY	4054	I	—	Private Serial Data Powertrain CAN Bus [-] Serial Data	45	—	—	—	—	—
46	0.35	WH	4055	I	—	Private Serial Data Powertrain CAN Bus [+] Serial Data	46	—	—	—	—	—
47	0.35	BK	1350	I	—	Ground	47	0.75	BK	1350	III	—
48	0.35	VT	4701	I	—	Retained Accessory Power Control	48	0.35	VT	4701	III	—
49 - 52	—	—	—	—	—	Not Occupied	49 - 52	—	—	—	—	—
53	0.35	BU / GY	4054	I	—	Private Serial Data Powertrain CAN Bus [-] Serial Data	53	—	—	—	—	—
54	0.75	BK	9003	I	—	Cavity Seal	54	1	BK	9003	III	—
55	—	—	—	—	—	Not Occupied	55	—	—	—	—	—

X237 Instrument Panel Wiring Harness to Instument Panel Airbag Harness

FIGURESIO=6258110 Owner=Owner, Schematics LMD=26-Jan-2023



—

4900699

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35053710
Service Connector: 19371193
Description: 4-Way F 1.2 MCON-CB Series, Sealed(YE)

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13583527
Service Connector: 19371193
Description: 4-Way M (YE)

Terminal Part Information

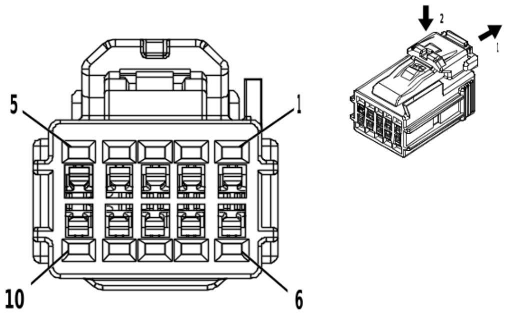
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	No Tool Required	No Tool Required

X237 Instrument Panel Wiring Harness to Instument Panel Airbag Harness

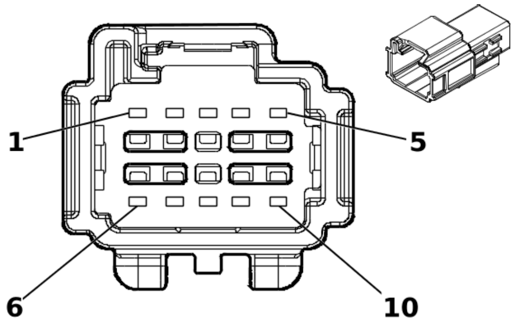
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	YE / OG	3025	I	—	Passenger Instrument Panel Air Bag Stage 1 High Control	1	0.35	YE / OG	3025	II	—
2	0.35	OG / WH	3024	I	—	Passenger Instrument Panel Air Bag Stage 1 Low Control	2	0.35	OG / WH	3024	II	—
3	0.35	GY / OG	3027	I	—	Passenger Instrument Panel Air Bag Stage 2 High Control	3	0.35	GY / OG	3027	II	—
4	0.35	OG / VT	3026	I	—	Passenger Instrument Panel Air Bag Stage 2 Low Control	4	0.35	OG / VT	3026	II	—

X250 Instrument Panel Wiring Harness to Heater Wiring Harness

FIGURESIO=6217812 Owner=Owner, Schematics LMD=26-Jan-2023



4254030



5355759

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35327186
Service Connector: 13532428
Description: 10-Way F 1.2 Series(BK)

Connector Part Information

Harness Type: Heater Wiring Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way M (BK)

Terminal Part Information

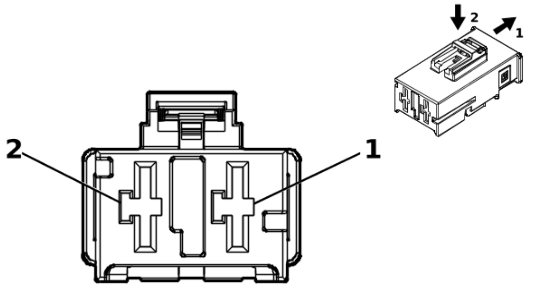
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	84962854	J-35616-12 (L-BU)	J-38125-215A
II	Not required	No Tool Required	No Tool Required

X250 Instrument Panel Wiring Harness to Heater Wiring Harness

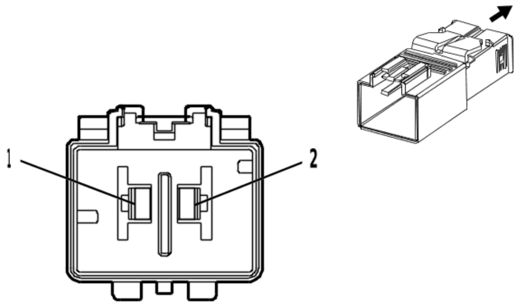
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	—	—	—	—	Not Occupied	1	—	—	—	—	—
2	0.5	BK	1050	I	—	Ground	2	0.5	BK	1050	II	—
3 - 4	—	—	—	—	—	Not Occupied	3 - 4	—	—	—	—	—
5	0.35	GY	6137	I	—	Air Conditioning Evaporator Temperature Sensor Signal	5	0.35	GY	6137	II	—
6	0.35	GN / VT	2852	I	—	Body Control Module LIN Bus 6	6	0.35	GN / VT	2852	II	—
7	0.35	BK / YE	407	I	—	Sensor Low Reference	7	0.35	BK / YE	407	II	—
8	0.5	VT / BK	339	I	—	Run/Crank Ignition 1 Voltage	8	0.5	VT / BK	339	II	—
9	0.35	WH / YE	4634	I	—	HVAC Remote Enable Signal	9	0.35	WH / YE	4634	II	—
10	—	—	—	—	—	Not Occupied	10	—	—	—	—	—

X251 Auxiliary Heater Wiring Harness to Body Wiring Harness

FIGURESIO=6217813 Owner=Owner, Schematics LMD=26-Jan-2023



5187955



4891120

Connector Part Information

Harness Type: Auxiliary Heater Wiring Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35134697
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 9.5 MCON-LL Series(BK)

Terminal Part Information

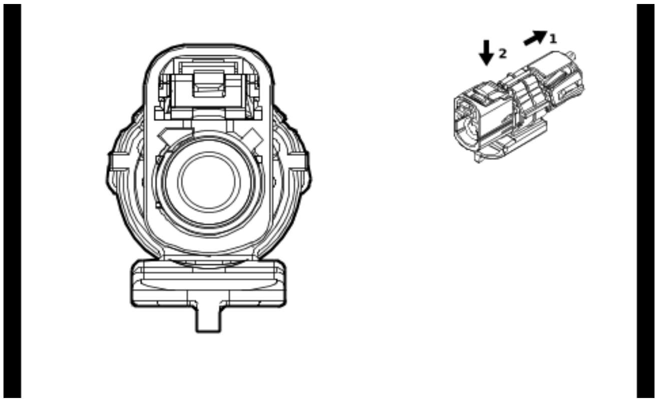
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	J-35616-21 (RD)	No Tool Required

X251 Auxiliary Heater Wiring Harness to Body Wiring Harness

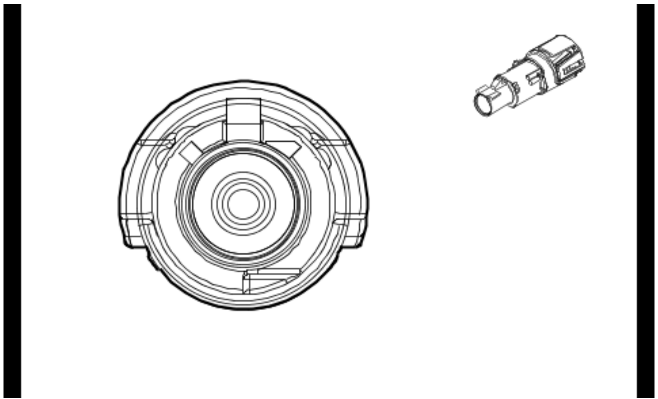
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	—	—	—	—	Not Occupied	1	—	—	—	—	—
2	10	RD / GY	642	I	—	Battery Positive Voltage	2	10	RD / GY	642	II	—

X309A Body Wiring Harness to Inside Rearview Mirror Wiring Harness (UVN)

FIGURESIO=6217814 Owner=Owner, Schematics LMD=26-Jan-2023



5519150



5518522

Connector Part Information

Harness Type: Body Wiring Harness COAX

OEM Connector: 35187047

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type, Sealed(BK)

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness COAX

OEM Connector: 33355538

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way M Coax Type(BK)

Terminal Part Information

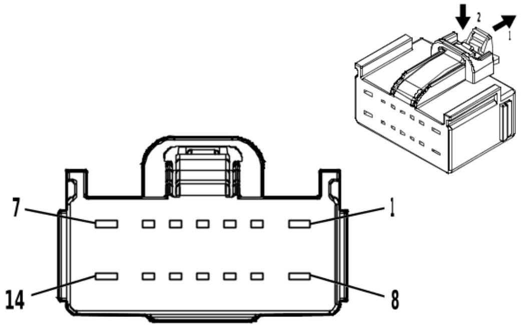
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X309A Body Wiring Harness to Inside Rearview Mirror Wiring Harness (UVN)

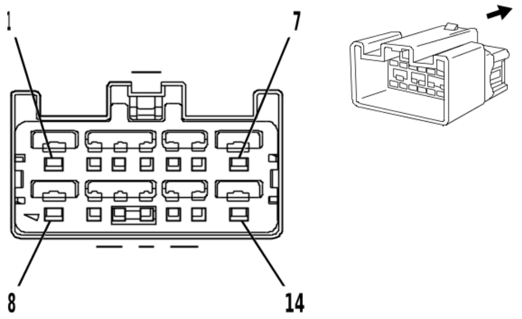
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	Coax Cable	—	I	—	Cargo Bed Rear Vision Camera Coaxial Video Signal	—	—	Coax Cable	—	I	—

X324 Body Wiring Harness to Body Rear Wiring Harness Extension Harness

FIGURESIO=6217815 Owner=Owner, Schematics LMD=26-Jan-2023



4934172



1283905

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 35105595

Service Connector: 13513604

Description: 14-Way F 1.5, 2.8 YESC Series(BK)

Connector Part Information

Harness Type: Body Rear Wiring Harness Extension Harness

OEM Connector: 10846900

Service Connector: Service by Harness - See Part Catalog

Description: 14-Way M 1.5, 2.8 YESC Series(L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	13575850	J-35616-2A (GY)	J-38125-557
II	84962855	J-35616-4A (PU)	J-38125-11A
III	Not required	J-35616-3 (GY)	No Tool Required
IV	Not required	J-35616-5 (PU)	No Tool Required

X324 Body Wiring Harness to Body Rear Wiring Harness Extension Harness

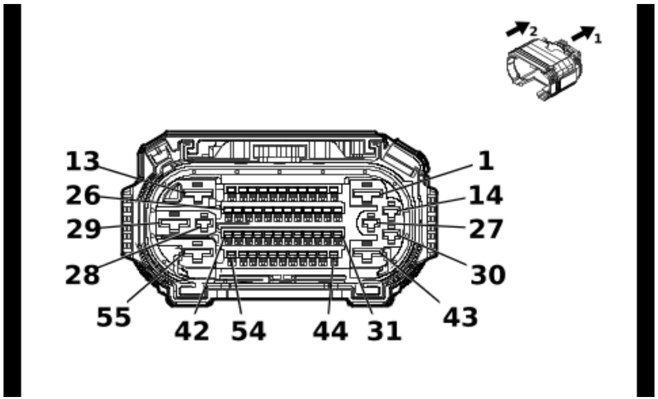
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BK	10117	II	—	AC Outlet Phase A Control	1	0.75	BK	10117	IV	—
2	0.5	VT / RD	4049	I	—	AC Power Outlet Sensor High Reference	2	0.5	VT / RD	4049	III	—
3	0.35	VT / WH	239	I	—	Run/Crank Ignition 1 Voltage	3	0.35	VT / WH	239	III	—
4	0.5	WH / GN	4628	I	—	DC/AC Inverter Relay Control	4	0.5	WH / GN	4628	III	—
5	0.5	BU / BN	6807	I	—	DC/AC Inverter Control	5	0.5	BU / BN	6807	III	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—
7	0.75	BK / WH	10120	II	—	AC Outlet 2 Phase A Control	7	0.75	BK / WH	10120	IV	—

X324 Body Wiring Harness to Body Rear Wiring Harness Extension Harness (cont'd)

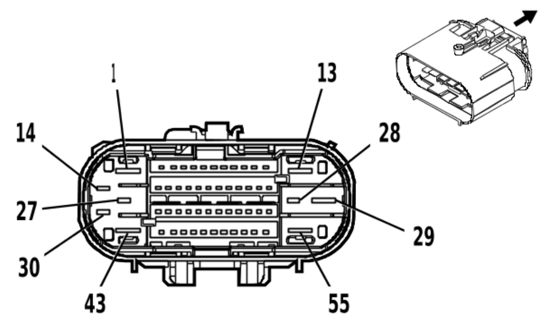
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
8	0.75	RD	10118	II	—	AC Outlet Phase B Control	8	0.75	RD	10118	IV	—
9	0.35	BARE	10116	I	—	AC Outlet Low Reference	9	0.35	BARE	10116	III	—
10	0.35	GN / BU	6133	I	—	Body Control Module LIN Bus 2	10	0.5	GN / BU	6133	III	—
11	—	—	—	—	—	Not Occupied	11	—	—	—	—	—
12	0.5	GN / BN	2266	I	—	DC/AC Inverter Control 2	12	0.5	GN / BN	2266	III	—
13	0.5	BARE	10119	I	—	AC Outlet 2 Low Reference	13	0.35	BARE	10119	III	—
14	0.75	RD / WH	10121	II	—	AC Outlet 2 Phase B Control	14	0.75	RD / WH	10121	IV	—

X331 Front Seat Wiring Harness - Driver to Body Wiring Harness

FIGURESIO=6217816 Owner=Owner, Schematics LMD=26-Jan-2023



5823852



4993301

Connector Part Information

Harness Type: Front Seat Wiring Harness - Driver

OEM Connector: 35572204

Service Connector: Service by Harness - See Part Catalog

Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 35205173

Service Connector: 84727364

Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-42 (RD)	No Tool Required
III	Not required	No Tool Required	No Tool Required
IV	84847992	J-35616-32 (OG)	J-38125-36
V	84867140	J-35616-13 (L-BU)	J-38125-215A

X331 Front Seat Wiring Harness - Driver to Body Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	BK	1550	II	—	Ground	1	2.5	BK	1550	IV	—
2	—	—	—	—	—	Cavity Seal	2	1	BK	9003	V	—
3	—	—	—	—	—	Not Occupied	3	—	—	—	—	—
4	0.5 0.75	RD / BN RD / BN	2240 2240	I I	A45 - A45	Battery Positive Voltage Battery Positive Voltage	4	0.5	RD / BN	2240	V	—
5	0.35	GN / WH	7530	I	—	Driver Seat Adjuster Memory Module LIN Bus 1	5	—	—	—	—	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—
7	0.35	WH	615	I	—	Seat Memory Switch Signal 1	7	0.35	WH	615	V	—

X331 Front Seat Wiring Harness - Driver to Body Wiring Harness (cont'd)

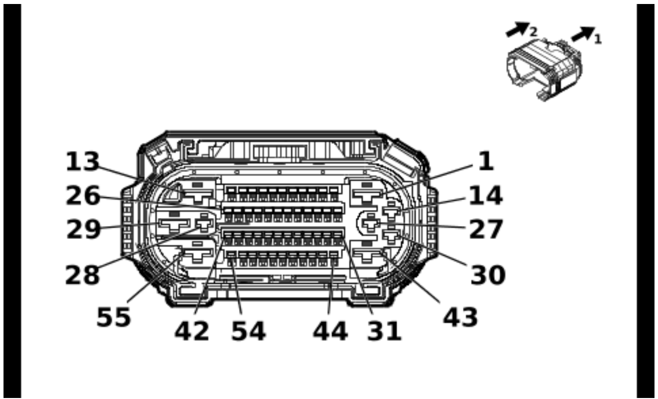
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
8	0.35	BU / GN	614	I	—	Seat Memory Switch Set Signal	8	0.35	BU / GN	614	V	—
9 - 11	—	—	—	—	—	Not Occupied	9 - 11	—	—	—	—	—
12	—	—	—	—	—	Cavity Seal	12	1	BK	9003	V	—
13 - 14	—	—	—	—	—	Not Occupied	13 - 14	—	—	—	—	—
15	0.75	BN / VT	2077	I	—	Driver Seat Heating Element Control	15	0.75	BN / VT	2077	V	—
16	0.75	BN / BK	2078	I	—	Driver Seat Heating Element Low Reference	16	0.75	BN / BK	2078	V	—
17	0.5	YE / GY	2079	I	—	Driver Seat Heating Temperature Sensor Signal	17	0.5	YE / GY	2079	V	—
18	0.5	BK / YE	2080	I	—	Driver Heated Seat Thermistor Low Reference	18	0.5	BK / YE	2080	V	—
19	0.5	BU	2425	I	—	Driver Seat Back Heating Temperature Sensor Signal	19	0.5	BU	2425	V	—
20	0.75	BN	2432	I	—	Driver Seat Back Heating Element Control	20	0.75	BN	2432	V	—
21 - 28	—	—	—	—	—	Not Occupied	21 - 28	—	—	—	—	—
29	2.5	RD / YE	5040	II	—	Battery Positive Voltage	29	2.5	RD / YE	5040	IV	—
30	—	—	—	—	—	Not Occupied	30	—	—	—	—	—
31	0.5	OG / GY	2652	I	—	Driver Seat Belt Sensor Signal	31	0.35	OG / BN	238	V	—
32	0.5	BK / OG	1363	I	—	Driver Seat Belt Switch Low Reference	32	0.5	BK / OG	1363	V	—
33	—	—	—	—	—	Not Occupied	33	—	—	—	—	—
34	0.5	BK / OG	4963	III	—	Driver Seat Back Air Bag Low Control	34	0.5	BK / OG	4963	V	—
35	0.5	OG / BU	4962	III	—	Driver Seat Back Air Bag High Control	35	0.5	OG / BU	4962	V	—
36 - 40	—	—	—	—	—	Not Occupied	36 - 40	—	—	—	—	—

X331 Front Seat Wiring Harness - Driver to Body Wiring Harness (cont'd)

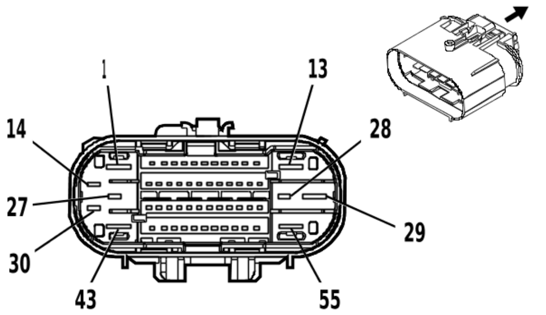
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
41	0.35	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	41	0.5	BU / VT	4101	V	—
42	0.35	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	42	0.5	WH	4100	V	—
43	—	—	—	—	—	Not Occupied	43	—	—	—	—	—
44	—	—	—	—	—	Cavity Seal	44	1	BK	9003	V	—
45 - 49	—	—	—	—	—	Not Occupied	45 - 49	—	—	—	—	—
50	0.35	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	50	0.5	BU / VT	4101	V	—
51	0.35	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	51	0.5	WH	4100	V	—
52	0.5	GN / VT	5906	I	—	Driver Seat Blower Motor Control 1	52	0.5	GN / VT	5906	V	—
53	0.75	VT / WH	1139	I	—	Run/Crank Ignition 1 Voltage	53	0.75	VT / WH	1139	V	—
54	—	—	—	—	—	Cavity Seal	54	1	BK	9003	V	—
55	—	—	—	—	—	Not Occupied	55	—	—	—	—	—

X336 Front Seat Wiring Harness - Passenger to Body Wiring Harness

FIGURESIO=6217817 Owner=Owner, Schematics LMD=27-Jan-2023



5823852



4993301

Connector Part Information

Harness Type: Front Seat Wiring Harness - Passenger

OEM Connector: 35572205

Service Connector: Service by Harness - See Part Catalog

Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Connector Part Information

Harness Type: Body Wiring Harness

OEM Connector: 35205173

Service Connector: 84727364

Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-42 (RD)	No Tool Required
III	Not required	No Tool Required	No Tool Required
IV	84847992	J-35616-32 (OG)	J-38125-36
V	84867140	J-35616-13 (L-BU)	J-38125-215A

X336 Front Seat Wiring Harness - Passenger to Body Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	BK	1350	II	A7K/ AVU/ KA1	Ground	1	2.5	BK	1350	IV	—
2	—	—	—	—	—	Cavity Seal	2	1	BK	9003	V	—
3	0.75	RD / GN	6140	I	—	Battery Positive Voltage	3	0.75	RD / GN	6140	V	—
4	0.5 0.75	RD / BN RD / BN	2240 2240	I I	AK7+ AVU AK7- AVU	Battery Positive Voltage Battery Positive Voltage	4	0.5	RD / BN	2240	V	—
5	0.75	RD / BN	6640	I	—	Battery Positive Voltage	5	0.75	RD / BN	6640	V	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—
7	0.5	BU	4987	I	—	AUTOSAR CAN Bus [+] 1 Serial Data	7	0.5	BU	4987	V	—
8	0.5	WH	4986	I	—	AUTOSAR CAN Bus [-] 1 Serial Data	8	0.5	WH	4986	V	—

X336 Front Seat Wiring Harness - Passenger to Body Wiring Harness (cont'd)

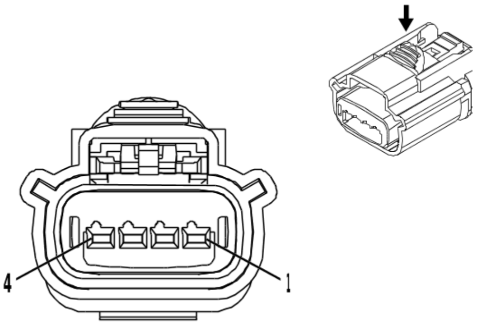
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
9 - 11	—	—	—	—	—	Not Occupied	9 - 11	—	—	—	—	—
12	—	—	—	—	—	Cavity Seal	12	1	BK	9003	V	—
13 - 14	—	—	—	—	—	Not Occupied	13 - 14	—	—	—	—	—
15	0.75	BN / VT	2077	I	—	Driver Seat Heating Element Control	15	0.75	BN / VT	2077	V	—
16	0.75	BN / BK	2078	I	—	Driver Seat Heating Element Low Reference	16	0.75	BN / BK	2078	V	—
17	0.5	YE / GY	2079	I	—	Driver Seat Heating Temperature Sensor Signal	17	0.5	YE / GY	2079	V	—
18	0.5	BK / YE	2080	I	—	Driver Heated Seat Thermistor Low Reference	18	0.5	BK / YE	2080	V	—
19	0.5	BU	2425	I	—	Driver Seat Back Heating Temperature Sensor Signal	19	0.5	BU	2425	V	—
20	0.75	BN	2432	I	—	Driver Seat Back Heating Element Control	20	0.75	BN	2432	V	—
21	0.5	GN / VT	2857	I	—	Body Control Module LIN Bus 11	21	0.35	GN / VT	2857	V	—
22	—	—	—	—	—	Not Occupied	22	—	—	—	—	—
23	0.5	RD / GN	4440	I	—	Battery Positive Voltage	23	0.5	RD / GN	4440	V	—
24	0.5	GY / OG	3946	I	AL0	Passenger Automatic Locking Retractor Switch Low Reference	24	0.35	GY / OG	3946	V	—
25	0.5	OG / BN	3947	I	AL0	Passenger Automatic Locking Retractor Switch Signal	25	0.35	OG / BN	3947	V	—
26	0.5	BK / WH	1251	I	—	Signal Ground	26	0.5	BK / WH	1251	V	—
27 - 28	—	—	—	—	—	Not Occupied	27 - 28	—	—	—	—	—
29	2.5	RD / YE	7440	II	—	Battery Positive Voltage	29	2.5	RD / YE	7440	IV	—
30	—	—	—	—	—	Not Occupied	30	—	—	—	—	—

X336 Front Seat Wiring Harness - Passenger to Body Wiring Harness (cont'd)

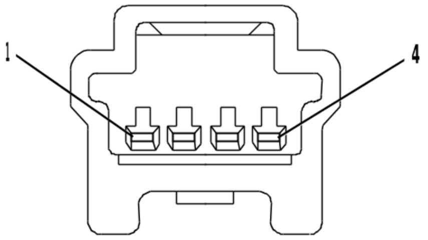
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
31	0.5	OG / VT	1362	I	—	Passenger Seat Belt Switch Signal	31	0.35	OG / VT	1362	V	—
32	0.5	BK / OG	1363	I	—	Driver Seat Belt Switch Low Reference	32	0.5	BK / OG	1363	V	—
33	—	—	—	—	—	Not Occupied	33	—	—	—	—	—
34	0.5	BU / OG	4957	III	—	Passenger Seat Back Air Bag Low Control	34	0.5	BU / OG	4957	V	—
35	0.5	OG / GY	4956	III	—	Passenger Seat Back Air Bag High Control	35	0.5	OG / GY	4956	V	—
36	0.5	GN / VT	5906	I	—	Driver Seat Blower Motor Control 1	36	0.5	GN / VT	5906	V	—
37	0.75	VT / WH	1139	I	—	Run/Crank Ignition 1 Voltage	37	0.75	VT / WH	1139	V	—
38 - 40	—	—	—	—	—	Not Occupied	38 - 40	—	—	—	—	—
41	0.35	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	41	0.5	BU / VT	4101	V	—
42	0.35	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	42	0.5	WH	4100	V	—
43	—	—	—	—	—	Not Occupied	43	—	—	—	—	—
44	—	—	—	—	—	Cavity Seal	44	1	BK	9003	V	—
45 - 49	—	—	—	—	—	Not Occupied	45 - 49	—	—	—	—	—
50	0.35	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	50	0.5	BU / VT	4101	V	—
51	0.35	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	51	0.5	WH	4100	V	—
52	0.5	BU	4987	I	—	AUTOSAR CAN Bus [+] 1 Serial Data	52	0.5	BU	4987	V	—
53	0.5	WH	4986	I	—	AUTOSAR CAN Bus [-] 1 Serial Data	53	0.5	WH	4986	V	—
54	—	—	—	—	—	Cavity Seal	54	1	BK	9003	V	—
55	—	—	—	—	—	Not Occupied	55	—	—	—	—	—

X340 Body Wiring Harness to Rear Seat Heater Control Wiring Harness

FIGURESIO=6217818 Owner=Owner, Schematics LMD=26-Jan-2023



4455251



4065409

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 15514524
Service Connector: 19355605
Description: 4-Way F 1.5 OCS Series, Sealed(BK)

Connector Part Information

Harness Type: Rear Seat Heater Control Wiring Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M (BK)

Terminal Part Information

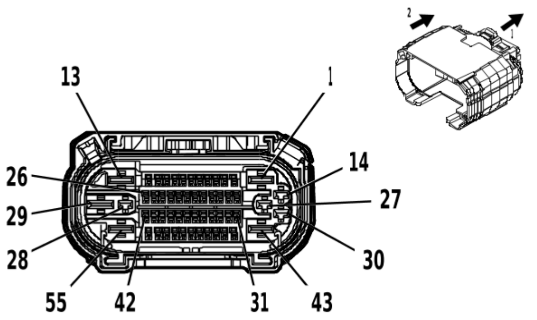
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	No Tool Required	No Tool Required

X340 Body Wiring Harness to Rear Seat Heater Control Wiring Harness

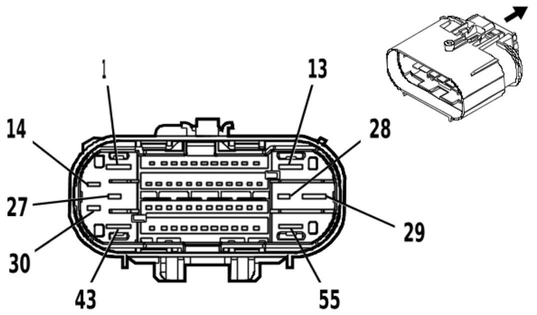
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	RD / WH	5740	I	—	Battery Positive Voltage	1	0.75	RD / WH	5740	II	—
2	0.75	RD / BU	6740	I	—	Battery Positive Voltage	2	0.75	RD / BU	6740	II	—
3	0.35	GN / VT	2857	I	—	Body Control Module LIN Bus 11	3	0.35	GN / VT	2857	II	—
4	0.75	BK	1550	I	—	Ground	4	0.75	BK	1550	II	—

X360 Chassis Wiring Harness to Fuel Pump Power Control Module Harness

FIGURESIO=6217819 Owner=Owner, Schematics LMD=26-Jan-2023



4992168



4993301

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 35016652

Service Connector: 19371185

Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Connector Part Information

Harness Type: Fuel Pump Power Control Module Harness

OEM Connector: 35205173

Service Connector: Service by Harness - See Part Catalog

Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19332901	J-35616-35 (VT)	J-38125-212
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	84634921	J-35616-42 (RD)	J-38125-212
IV	Not required	J-35616-13 (L-BU)	No Tool Required
V	Not required	J-35616-32 (OR)	No Tool Required
VI	Not required	J-35616-5 (PU)	No Tool Required

X360 Chassis Wiring Harness to Fuel Pump Power Control Module Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	GY	120	III	—	Fuel Pump Control	1	2.5	GY	120	V	—
2	0.75	BU / GN	11437	II	—	Secondary Fuel Pump Disable Signal	2	0.75	BU / GN	11437	IV	—
3	—	—	—	—	—	Not Occupied	3	—	—	—	—	—
4	0.5	BN / WH	7073	II	—	Fuel Temperature Sensor 1 Low Reference	4	0.5	BN / WH	7073	IV	—
5	—	—	—	—	—	Not Occupied	5	—	—	—	—	—
6	0.5	VT / WH	639	II	—	Run/Crank Ignition 1 Voltage	6	0.5	VT / WH	639	IV	—

X360 Chassis Wiring Harness to Fuel Pump Power Control Module Harness (cont'd)

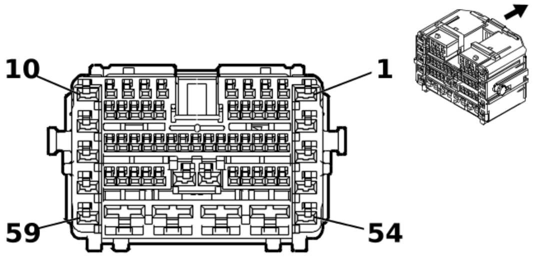
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
7	—	—	—	—	—	Not Occupied	7	—	—	—	—	—
8	0.5	BN / GY	7072	II	—	Fuel Temperature Sensor 1 Signal	8	0.5	BN / GY	7072	IV	—
9	—	—	—	—	—	Not Occupied	9	—	—	—	—	—
10	0.5	GN / GY	465	II	—	Fuel Pump Primary Relay Control	10	0.5	GN / GY	465	IV	—
11	—	—	—	—	—	Not Occupied	11	—	—	—	—	—
12	0.75	BU / GN	1936	II	—	Primary Fuel Level Sensor Signal	12	0.75	BU / GN	1936	IV	—
13	1	BK / GN	1580	III	—	Fuel Pump Low Reference	13	1	BK / GN	1580	V	—
14	2.5	RD / VT	1940	I	—	Battery Positive Voltage	14	2.5	RD / VT	1940	VI	—
15	—	—	—	—	—	Not Occupied	15	—	—	—	—	—
16	0.5	BU / WH	1937	II	—	Secondary Fuel Level Sensor Signal	16	0.5	BU / WH	1937	IV	—
17	—	—	—	—	—	Not Occupied	17	—	—	—	—	—
18	0.5	BK / GN	6281	II	—	Fuel Level Sensor Low Reference	18	0.5	BK / GN	6281	IV	—
19	—	—	—	—	—	Not Occupied	19	—	—	—	—	—
20	0.5	BK / BU	6282	II	—	Fuel Level Sensor 2 Low Reference	20	0.5	BK / BU	6282	IV	—
21	—	—	—	—	—	Not Occupied	21	—	—	—	—	—
22	0.5	BU / YE	6861	II	—	Water In Fuel Sensor Signal	22	0.5	BU / YE	6861	IV	—
23	—	—	—	—	—	Not Occupied	23	—	—	—	—	—
24	0.5	BK / BU	6863	II	—	Water In Fuel Sensor Low Reference	24	0.5	BK / BU	6863	IV	—
25	—	—	—	—	—	Not Occupied	25	—	—	—	—	—
26	0.5	BN / RD	7445	II	—	Fuel Line Pressure Sensor 5V Reference	26	0.5	BN / RD	7445	IV	—
27	1	BU / GN	2120	I	—	Secondary Fuel Pump Control	27	1	BU / GN	2120	VI	—

X360 Chassis Wiring Harness to Fuel Pump Power Control Module Harness (cont'd)

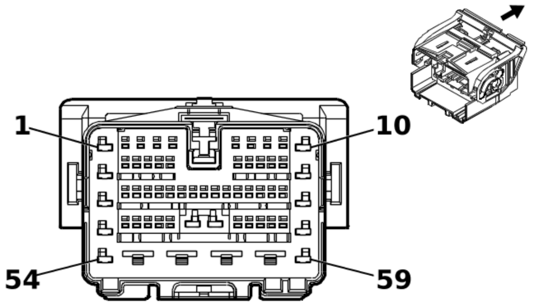
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
28	2.5	YE / GY	4137	I	—	Fuel Pump Supply Voltage Phase 2	28	2.5	YE / GY	4137	VI	—
29	0.75	VT / GN	4320	III	—	Powertrain Sensor Bus Enable	29	0.75	VT / GN	4320	V	—
30	2.5	WH / BN	4138	I	—	Fuel Pump Supply Voltage Phase 3	30	2.5	WH / BN	4138	VI	—
31 - 42	—	—	—	—	—	Not Occupied	31 - 42	—	—	—	—	—
43	2.5	BK / WH	1951	III	—	Signal Ground	43	2.5	BK / WH	1951	V	—
44	0.75	BU / WH	7446	II	—	Fuel Pressure Sensor Signal	44	0.75	BU / WH	7446	IV	—
45	—	—	—	—	—	Not Occupied	45	—	—	—	—	—
46	0.5	BK / YE	7447	II	—	Fuel Pressure Sensor Low Reference	46	0.5	BK / YE	7447	IV	—
47 - 49	—	—	—	—	—	Not Occupied	47 - 49	—	—	—	—	—
50	0.5	WH	4055	II	—	Private Serial Data Powertrain CAN Bus [+] Serial Data	50	0.5	WH	4055	IV	—
51	—	—	—	—	—	Not Occupied	51	—	—	—	—	—
52	0.5	BU / GY	4054	II	—	Private Serial Data Powertrain CAN Bus [-] Serial Data	52	0.5	BU / GY	4054	IV	—
53	—	—	—	—	—	Not Occupied	53	—	—	—	—	—
54	0.75	WH	7444	II	—	Fuel Pump Assembly Shield Ground	54	0.75	WH	7444	IV	—
55	—	—	—	—	—	Not Occupied	55	—	—	—	—	—

X370A Dome Lamp Wiring Harness to Instrument Panel Wiring Harness

FIGURESIO=6217820 Owner=Owner, Schematics LMD=26-Jan-2023



5278767



5278741

Connector Part Information

Harness Type: Dome Lamp Wiring Harness

OEM Connector: 33387960

Service Connector: 13528126

Description: 59-Way F 1.2 MCON, 2.8, 6.3 YESC Series(BK)

Connector Part Information

Harness Type: Instrument Panel Wiring Harness

OEM Connector: 33387961

Service Connector: 84766292

Description: 59-Way M 1.2 MCON, 2.8, 6.3 YESC Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19331733	J-35616-12 (L-BU)	J-38125-215A
II	85544080	J-35616-4A (PU)	J-38125-11A
III	13578908	J-35616-5 (PU)	J-38125-11A
IV	19330704	J-35616-13 (L-BU)	J-38125-215A

X370A Dome Lamp Wiring Harness to Instrument Panel Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	RD / YE	240	II	—	Battery Positive Voltage	1	0.5	RD / YE	240	III	—
2	0.5	VT / BK	339	I	—	Run/Crank Ignition 1 Voltage	2	0.5	VT / BK	339	IV	—
3	—	—	—	—	—	Not Occupied	3	—	—	—	—	—
4	0.35	GN / BN	3005	I	—	Active Noise Cancellation Microphone 1 Signal	4	0.35	GN / BN	3005	IV	—
5	0.35	GN / BK	3008	I	—	Active Noise Cancellation Microphone 1 Feedback Signal	5	0.35	GN / BK	3008	IV	—
6 - 9	—	—	—	—	—	Not Occupied	6 - 9	—	—	—	—	—
10	0.35	WH	4978	II	—	AUTOSAR CAN Bus [-] 2 Serial Data	10	0.35	WH	4978	III	—

X370A Dome Lamp Wiring Harness to Instrument Panel Wiring Harness (cont'd)

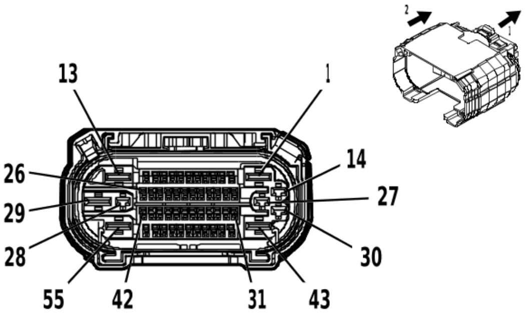
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
11	0.35	BU / YE	4979	II	—	AUTOSAR CAN Bus [+] 2 Serial Data	11	0.35	BU / YE	4979	III	—
12	0.35	WH	4978	I	—	AUTOSAR CAN Bus [-] 2 Serial Data	12	0.5	WH	4978	IV	—
13	0.35	BU / YE	4979	I	—	AUTOSAR CAN Bus [+] 2 Serial Data	13	0.5	BU / YE	4979	IV	—
14	0.35	BK / BN	654	I	—	Cellular Telephone Microphone Low Reference	14	0.35	BK / BN	654	IV	—
15	0.35	BU	655	I	—	Cellular Telephone Microphone Signal	15	0.35	BU	655	IV	—
16	0.35	VT / YE	7043	I	—	Microphone [+] Signal	16	0.35	VT / YE	7043	IV	—
17	0.35	BU / BK	7044	I	—	Microphone [-] Signal	17	0.35	BU / BK	7044	IV	—
18	0.5	BU / BK	1053	I	—	Center High Mounted Stop Lamp Control 3	18	0.5	BU / BK	1053	IV	—
19	0.5	WH / VT	1430	I	—	Exterior Courtesy Lamp Control	19	0.5	WH / VT	1430	IV	—
20	0.35	YE / WH	1690	I	—	Mirror Dimming Signal	20	0.35	YE / WH	1690	IV	—
21	0.35	BK / YE	1691	I	—	Automatic Day/Night Mirror Low Reference	21	0.35	BK / YE	1691	IV	—
22	0.35	GN / WH	24	II	—	Backup Lamp Control	22	0.35	GN / WH	24	III	—
23	0.35	GN / WH	2514	II	—	Telematics Switch Signal	23	0.35	GN / WH	2514	III	—
24	0.35	GN / BK	2515	I	—	Telematics Switch Supply Voltage	24	0.35	GN / BK	2515	IV	—
25	0.35	YE / VT	2516	I	—	Telematics Switch Green LED Indicator Control	25	0.35	YE / VT	2516	IV	—
26	0.35	BN / WH	2517	I	—	Telematics Switch Red LED Indicator Control	26	0.35	BN / WH	2517	IV	—
27	0.5	GN / WH	2854	I	—	Body Control Module LIN Bus 8	27	0.5	GN / WH	2854	IV	—
28	0.35	GN / WH	4115	I	—	Body Control Module LIN Bus 5	28	0.35	GN / WH	4115	IV	—
29	0.35	YE / VT	6191	I	—	Power Rear Window Switch Open Signal	29	0.5	YE / VT	6191	IV	—

X370A Dome Lamp Wiring Harness to Instrument Panel Wiring Harness (cont'd)

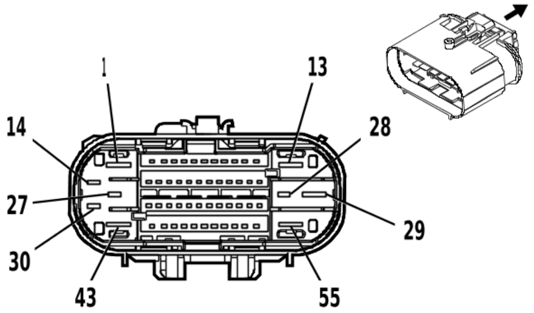
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
30	0.35	WH	6192	I	—	Sliding Rear Window Switch Close Signal	30	0.5	WH	6192	IV	—
31	0.35	YE	6817	I	—	LED Backlight Dimming Control 1	31	0.35	YE	6817	IV	—
32	0.5	VT	801	I	—	Retained Accessory Power Control	32	0.5	VT	801	IV	—
33	0.5	BN / YE	820	I	—	Center High Mounted Stop Lamp Supply Voltage	33	0.5	BN / YE	820	IV	—
34	0.35	RD / WH	1340	I	—	Battery Positive Voltage	34	0.35	RD / WH	1340	IV	—
35	—	—	—	—	—	Not Occupied	35	—	—	—	—	—
36	0.35	BK / WH	851	I	—	Signal Ground	36	0.5	BK / WH	851	IV	—
37 - 38	—	—	—	—	—	Not Occupied	37 - 38	—	—	—	—	—
39	2.5	VT / BU	10735	II	—	Upfitter Accessory 5 Supply Voltage	39	2.5	VT / BU	10735	III	—
40	2.5	BK	1050	II	—	Ground	40	2.5	BK	1050	III	—
41 - 52	—	—	—	—	—	Not Occupied	41 - 52	—	—	—	—	—
53	2.5	RD / BU	4540	II	—	Battery Positive Voltage	53	2.5	RD / BU	4540	III	—
54 - 59	—	—	—	—	—	Not Occupied	54 - 59	—	—	—	—	—

X370B Dome Lamp Wiring Harness to Instrument Panel Wiring Harness

FIGURESIO=6217821 Owner=Owner, Schematics LMD=26-Jan-2023



4992168



4993301

Connector Part Information

Harness Type: Dome Lamp Wiring Harness

OEM Connector: 35016652

Service Connector: 19371185

Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Connector Part Information

Harness Type: Instrument Panel Wiring Harness

OEM Connector: 35205173

Service Connector: 84727364

Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19332901	J-35616-35 (VT)	J-38125-212
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	19371217	J-35616-12 (L-BU)	J-38125-553
IV	84634921	J-35616-42 (RD)	J-38125-212
V	84847992	J-35616-32 (OG)	J-38125-36
VI	84867140	J-35616-13 (L-BU)	J-38125-215A
VII	84992391	J-35616-5 (PU)	J-38125-215A

X370B Dome Lamp Wiring Harness to Instrument Panel Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	RD / YE	240	IV	—	Battery Positive Voltage	1	0.5	RD / YE	240	V	—
2	1.5	BK	9003	III	—	Cavity Seal	2	1	BK	9000	VI	—
3	0.5	VT / BK	339	II	—	Run/Crank Ignition 1 Voltage	3	0.5	VT / BK	339	VI	—
4	0.35	WH	4978	II	—	AUTOSAR CAN Bus [-] 2 Serial Data	4	0.35	WH	4978	VI	—
5	0.35	BU / YE	4979	II	—	AUTOSAR CAN Bus [+] 2 Serial Data	5	0.35	BU / YE	4979	VI	—
6	0.35	BK / BN	654	II	—	Cellular Telephone Microphone Low Reference	6	0.35	BK / BN	654	VI	—

X370B Dome Lamp Wiring Harness to Instrument Panel Wiring Harness (cont'd)

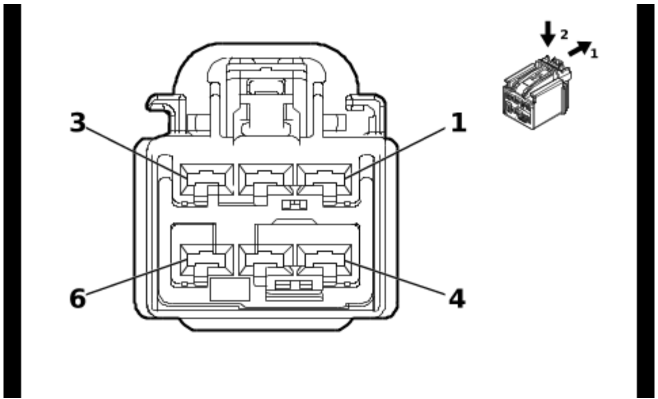
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
7	0.35	BU	655	II	—	Cellular Telephone Microphone Signal	7	0.35	BU	655	VI	—
8	0.5	BU / BK	1053	II	—	Center High Mounted Stop Lamp Control 3	8	0.5	BU / BK	1053	VI	—
9	0.5	WH / VT	1430	II	—	Exterior Courtesy Lamp Control	9	0.5	WH / VT	1430	VI	—
10 - 11	—	—	—	—	—	Not Occupied	10 - 11	—	—	—	—	—
12	1.5	BK	9003	III	—	Cavity Seal	12	1	BK	9000	VI	—
13 - 14	—	—	—	—	—	Not Occupied	13 - 14	—	—	—	—	—
15	0.5	GN / WH	2854	II	—	Body Control Module LIN Bus 8	15	0.5	GN / WH	2854	VI	—
16	—	—	—	—	—	Not Occupied	16	—	—	—	—	—
17	0.5	BN / YE	820	II	—	Center High Mounted Stop Lamp Supply Voltage	17	0.5	BN / YE	820	VI	—
18 - 19	—	—	—	—	—	Not Occupied	18 - 19	—	—	—	—	—
20	0.35	YE / WH	1690	II	—	Mirror Dimming Signal	20	0.35	YE / WH	1690	VI	—
21	0.35	BK / YE	1691	II	—	Automatic Day/Night Mirror Low Reference	21	0.35	BK / YE	1691	VI	—
22	0.35	GN / WH	24	II	—	Backup Lamp Control	22	0.35	GN / WH	24	VI	—
23	0.35	GN / WH	2514	II	—	Telematics Switch Signal	23	0.35	GN / WH	2514	VI	—
24	0.35	GN / BK	2515	II	—	Telematics Switch Supply Voltage	24	0.35	GN / BK	2515	VI	—
25	0.35	YE / VT	2516	II	—	Telematics Switch Green LED Indicator Control	25	0.35	YE / VT	2516	VI	—
26	0.35	BN / WH	2517	II	—	Telematics Switch Red LED Indicator Control	26	0.35	BN / WH	2517	VI	—
27	2.5	BK	1050	I	—	Ground	27	2.5	BK	1050	VII	—
28	2.5	VT / BU	10735	I	—	Upfitter Accessory 5 Supply Voltage	28	2.5	VT / BU	10735	VII	—
29 - 35	—	—	—	—	—	Not Occupied	29 - 35	—	—	—	—	—

X370B Dome Lamp Wiring Harness to Instrument Panel Wiring Harness (cont'd)

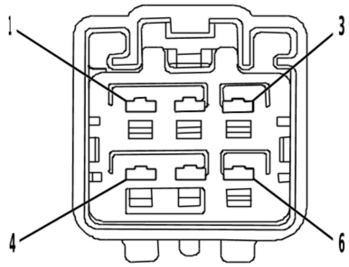
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
36	0.35	BK / WH	851	II	—	Signal Ground	36	0.5	BK / WH	851	VI	—
37 - 43	—	—	—	—	—	Not Occupied	37 - 43	—	—	—	—	—
44	1.5	BK	9003	III	—	Cavity Seal	44	1	BK	9000	VI	—
45	—	—	—	—	—	Not Occupied	45	—	—	—	—	—
46	0.35	WH	4978	II	—	AUTOSAR CAN Bus [-] 2 Serial Data	46	0.35	WH	4978	VI	—
47	0.35	BU / YE	4979	II	—	AUTOSAR CAN Bus [+] 2 Serial Data	47	0.35	BU / YE	4979	VI	—
48 - 53	—	—	—	—	—	Not Occupied	48 - 53	—	—	—	—	—
54	1.5	BK	9003	III	—	Cavity Seal	54	1	BK	9000	VI	—
55	—	—	—	—	—	Not Occupied	55	—	—	—	—	—

X371A Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness

FIGURESIO=6217822 Owner=Owner, Schematics LMD=26-Jan-2023



5757440



1849802

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness
OEM Connector: 35360831
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 2.8 YESC Series(GY)

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 10847012
Service Connector: 84727361
Description: 6-Way M Kaizen Series(L-GY)

Terminal Part Information

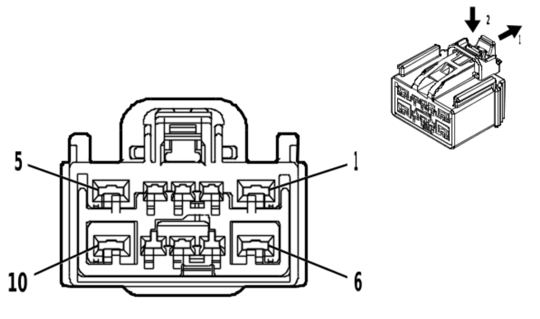
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-4A (PU)	No Tool Required
II	Not required	J-35616-5 (PU)	No Tool Required

X371A Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness

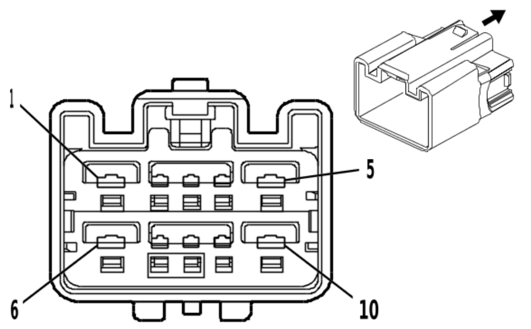
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	WH / VT	1430	I	—	Exterior Courtesy Lamp Control	1	0.5	WH / VT	1430	II	—
2	0.5	BN / YE	820	I	—	Center High Mounted Stop Lamp Supply Voltage	2	0.5	BN / YE	820	II	—
3	0.5	BK	1050	I	—	Ground	3	1	BK	1050	II	—
4	2.5	BK	1050	I	—	Ground	4	2.5	BK	1050	II	—
5	2.5	VT / BU	10735	I	—	Upfitter Accessory 5 Supply Voltage	5	2.5	VT / BU	10735	II	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—

X371A_UVO Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness

FIGURESIO=6217823 Owner=Owner, Schematics LMD=26-Jan-2023



5020939



1851890

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness
OEM Connector: 35061724
Service Connector: Service by Harness - See Part Catalog
Description: 10-Way F 1.5, 2.8 Kaizen Series(L-GY)

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 13506926
Service Connector: 89047070
Description: 10-Way M 1.5, 2.8 Kaizen Series(L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	13578907	J-35616-3 (GY)	J-38125-215A
IV	13578908	J-35616-5 (PU)	J-38125-11A

X371A_UVO Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness

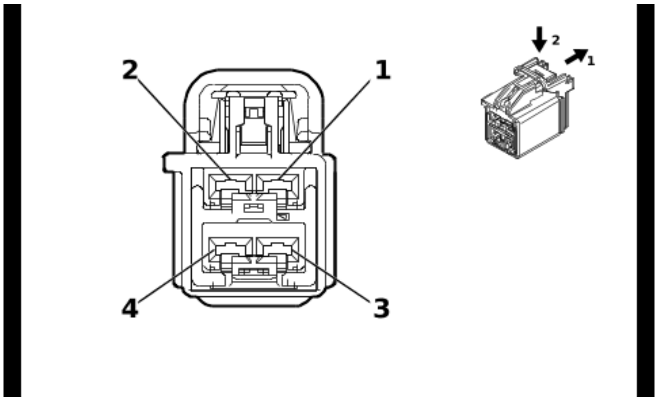
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	GN / BU	5989	II	—	Emergency Vehicle Lamp Relay Control	1	2.5	VT / BU	10735	IV	—
2	0.35	VT / WH	5065	I	—	Stop Lamp Relay Coil Control	2	0.5	BN / YE	820	III	—
3	0.35	BK	1050	I	—	Ground	3	1	BK	1050	III	—
4	0.35	WH / VT	1430	I	—	Exterior Courtesy Lamp Control	4	0.5	WH / VT	1430	III	—
5	2.5	BK	1050	II	—	Ground	5	2.5	BK	1050	IV	—
6	0.35	VT / GN	1739	II	—	Run/Crank Ignition 1 Voltage	6	0.35	VT / BK	339	IV	—
7	0.35	WH / BU	6973	I	—	Rearview Camera Signal [-]	7	0.35	WH / BU	6973	III	—
8	0.35	GY / YE	6972	I	—	Rearview Camera Signal [+]	8	0.35	GY / YE	6972	III	—

X371A_UVO Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness (cont'd)

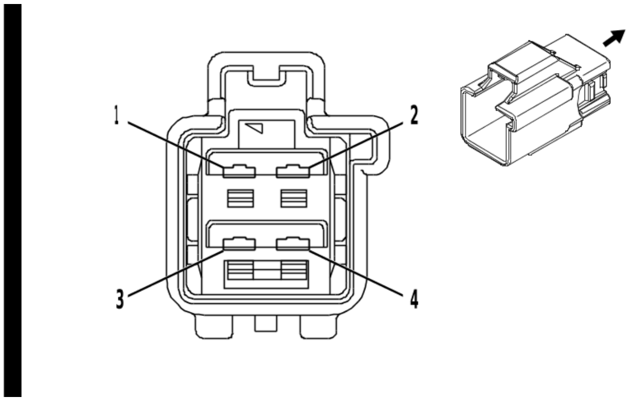
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
9	0.35	BAR-E	6974	I	—	Rearview Camera Low Reference	9	0.35	BAR-E	6974	III	—
10	0.35	BK / WH	1851	II	—	Signal Ground	10	0.35	BK / WH	851	IV	—

X375 Sunroof Jumper Harness to Dome Lamp Wiring Harness

FIGURESIO=6258113 Owner=Owner, Schematics LMD=27-Jan-2023



5515744



4257143

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13524439
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way F 2.8 YESC Series(GY)

Connector Part Information

Harness Type: Dome Lamp Wiring Harness
OEM Connector: 10847009
Service Connector: 89046843
Description: 4-Way M 2.8 YESC Series(GY)

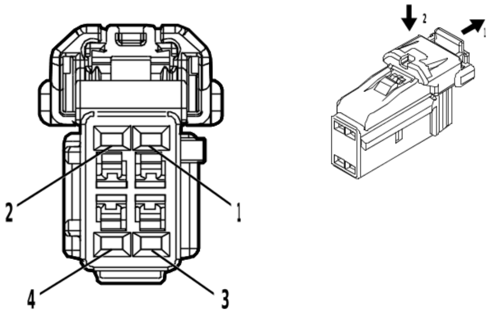
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	J-35616-5 (PU)	No Tool Required

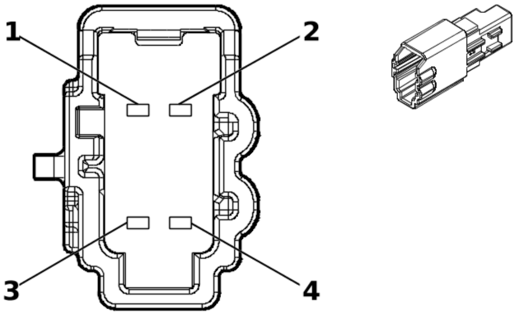
X375 Sunroof Jumper Harness to Dome Lamp Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	BK	1050	I	—	Ground	1	2.5	BK	1050	II	—
2	0.5	GN / WH	2854	I	—	Body Control Module LIN Bus 8	2	0.5	GN / WH	2854	II	—
3	—	—	—	—	—	Not Occupied	3	—	—	—	—	—
4	2.5	RD / BU	4540	I	—	Battery Positive Voltage	4	2.5	RD / BU	4540	II	—

X382 Headlamp Automatic Control Ambient Light Sensor Wiring Harness to Dome Lamp Wiring Harness FIGURESIO=6217824 Owner=Owner, Schematics LMD=26-Jan-2023



4872683



5360963

Connector Part Information

Harness Type: Headlamp Automatic Control Ambient Light Sensor Wiring Harness

OEM Connector: Not Available

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F

Connector Part Information

Harness Type: Dome Lamp Wiring Harness

OEM Connector: 35264699

Service Connector: 84847258

Description: 4-Way M 1.2 MCON Series(BK)

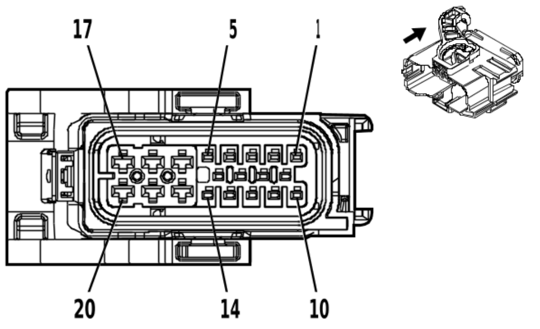
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	J-35616-13 (L-BU)	No Tool Required

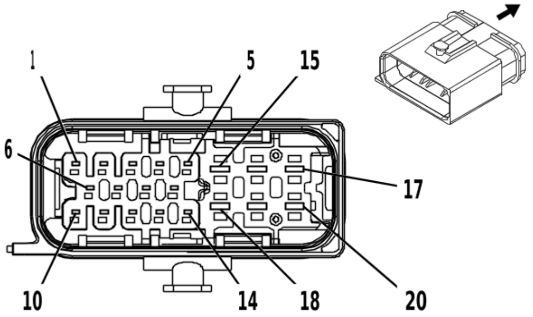
X382 Headlamp Automatic Control Ambient Light Sensor Wiring Harness to Dome Lamp Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	RD / WH	1340	I	—	Battery Positive Voltage	1	0.35	RD / WH	1340	II	—
2	0.35	GN / WH	4115	I	—	Body Control Module LIN Bus 5	2	0.35	GN / WH	4115	II	—
3	0.35	BK	1050	I	—	Ground	3	0.35	BK	1050	II	—
4	—	—	—	—	—	Not Occupied	4	—	—	—	—	—

X401 Chassis Wiring Harness to Engine Wiring Harness Chassis (L5P) FIGURESIO=6217825 Owner=Owner, Schematics LMD=29-Mar-2023



4994285



4500420

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 13974124

Service Connector: 19371189

Description: 20-Way F 1.2 MCON, 2.8 MCP Series, Sealed(BK)

Connector Part Information

Harness Type: Engine Wiring Harness Chassis

OEM Connector: 33156041

Service Connector: 19333031

Description: 20-Way M 1.2, 2.8 MCP Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300446	J-35616-12 (L-BU)	J-38125-12A
II	19368624	J-35616-35 (VT)	J-38125-212
III	Not Available	J-35616-12 (L-BU)	J-38125-215A
IV	Not Available	J-35616-35 (VT)	J-38125-212
V	13575364	J-35616-5 (PU)	J-38125-36
VI	19356519	J-35616-13 (L-BU)	J-38125-215A

X401 Chassis Wiring Harness to Engine Wiring Harness Chassis (L5P)

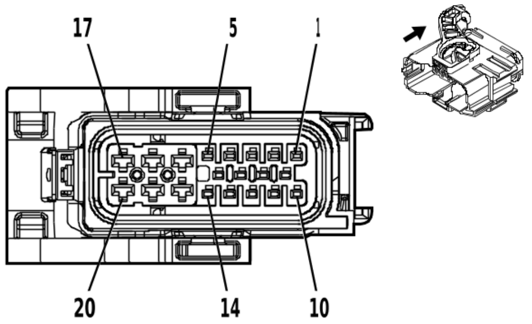
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	WH	4055	I	—	Private Serial Data Powertrain CAN Bus [+] Serial Data	1	0.5	WH	4055	VI	—
2	0.5	BU / GY	4054	I	—	Private Serial Data Powertrain CAN Bus [-] Serial Data	2	0.5	BU / GY	4054	VI	—
3	0.5	GN / GY	465	I	—	Fuel Pump Primary Relay Control	3	0.5	GN / GY	465	VI	—
4	1	BK / WH	1151	III	—	Signal Ground	4	0.75	BK / WH	1151	VI	—

X401 Chassis Wiring Harness to Engine Wiring Harness Chassis (L5P) (cont'd)

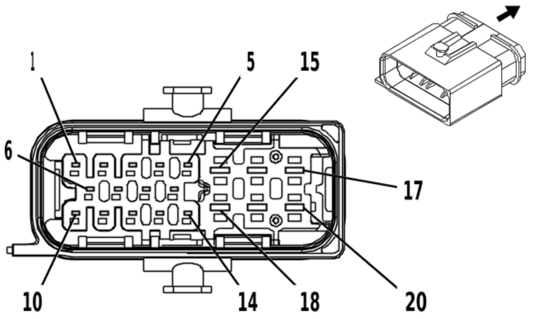
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
5	0.5	BU	10290	I	—	Exhaust Gas Temperature Sensor SENT 2 Signal	5	0.5	BU	10290	VI	—
6	0.75	BU / GN	11437	I	—	Secondary Fuel Pump Disable Signal	6	0.5	BU / GN	11437	VI	—
7	1	WH / RD	480	III	—	Engine Control Vehicle Sensors 5 Volt Reference 1	7	0.5	WH / RD	480	VI	—
8	1	WH / BN	2363	III	—	Exhaust Pressure Sensor SENT 1 Signal	8	0.5	WH / BN	2363	VI	—
9	1	BK / GY	626	III	—	Engine Control Vehicle Sensors Low Reference 1	9	0.5	BK / GY	626	VI	—
10	0.5	YE	10291	I	—	Exhaust Gas Temperature Sensor SENT 3 Signal	10	0.5	YE	10291	VI	—
11	0.5	BN / BU	2926	I	—	Exhaust Aftertreatment Fuel Injector High Control	11	0.5	BN / BU	2926	VI	—
12	0.5	VT / BN	2927	I	—	Exhaust Aftertreatment Fuel Injector Low Control	12	0.5	VT / BN	2927	VI	—
13	0.5	YE / RD	10595	I	—	Engine Control Vehicle Sensors 5 Volt Reference 2	13	0.5	YE / RD	10595	VI	—
14	—	—	—	—	—	Not Occupied	14	—	—	—	—	—
15	1.5	VT / GN	4320	IV	—	Powertrain Sensor Bus Enable	15	1.5	VT / GN	4320	V	—
16	0.5	BU / BK	4977	II	—	AUTOSAR CAN Bus [+] 3 Serial Data	16	0.5	BU / BK	4977	V	—
17	0.5	WH	4976	II	—	AUTOSAR CAN Bus [-] 3 Serial Data	17	0.5	WH	4976	V	—
18	—	—	—	—	—	Not Occupied	18	—	—	—	—	—
19	0.5	BU / YE	4979	II	—	AUTOSAR CAN Bus [+] 2 Serial Data	19	0.5	BU / YE	4979	V	—
20	0.5	WH	4978	II	—	AUTOSAR CAN Bus [-] 2 Serial Data	20	0.5	WH	4978	V	—

X401 Chassis Wiring Harness to Engine Wiring Harness (L8T)

FIGURESIO=6217826 Owner=Owner, Schematics LMD=29-Mar-2023



4994285



4500420

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 13974124

Service Connector: 19371189

Description: 20-Way F 1.2 MCON, 2.8 MCP Series, Sealed(BK)

Connector Part Information

Harness Type: Engine Wiring Harness

OEM Connector: 33156041

Service Connector: 19333031

Description: 20-Way M 1.2, 2.8 MCP Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19300446	J-35616-12 (L-BU)	J-38125-12A
II	19368624	J-35616-35 (VT)	J-38125-212
III	Not required	Pending	No Tool Required
IV	13575364	J-35616-5 (PU)	J-38125-36
V	19356519	J-35616-13 (L-BU)	J-38125-215A

X401 Chassis Wiring Harness to Engine Wiring Harness (L8T)

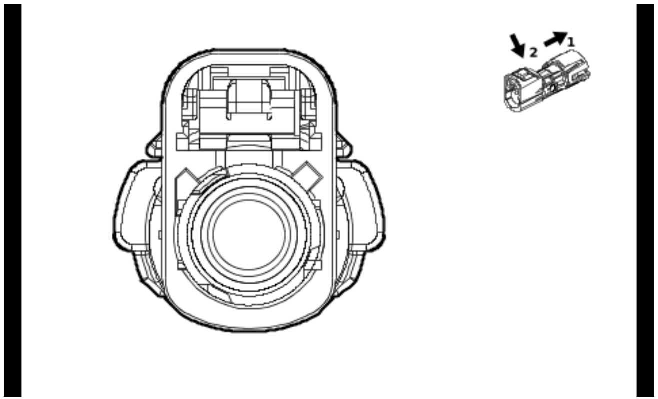
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	WH	4055	I	—	Private Serial Data Powertrain CAN Bus [+] Serial Data	1	0.5	WH	4055	V	—
2	0.5	BU / GY	4054	I	—	Private Serial Data Powertrain CAN Bus [-] Serial Data	2	0.5	BU / GY	4054	V	—
3	0.5	GN / GY	465	I	—	Fuel Pump Primary Relay Control	3	0.5	GN / GY	465	V	—
4 - 5	—	—	—	—	—	Not Occupied	4 - 5	—	—	—	—	—
6	0.5	BU / GN	11437	I	—	Secondary Fuel Pump Disable Signal	6	0.5	BU / GN	11437	V	—

X401 Chassis Wiring Harness to Engine Wiring Harness (L8T) (cont'd)

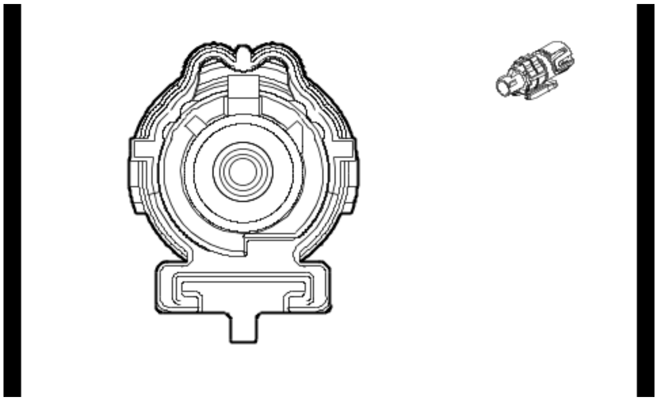
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
7	0.5	BK / GY	626	I	—	Engine Control Vehicle Sensors Low Reference 1	7	0.5	BK / GY	626	V	—
8	0.5	YE / GY	11029	I	—	Canister Vapor Pressure Sensor Signal	8	0.5	YE / GY	11029	V	—
9	0.5	WH / RD	480	I	—	Engine Control Vehicle Sensors 5 Volt Reference 1	9	0.5	WH / RD	480	V	—
10 - 13	—	—	—	—	—	Not Occupied	10 - 13	—	—	—	—	—
14	0.75	VT / BU	5293	III	—	Powertrain Main Relay Fused Supply Voltage 4	14	0.75	VT / BU	5293	V	—
15	0.5	VT / GN	4320	II	—	Powertrain Sensor Bus Enable	15	0.5	VT / GN	4320	IV	—
16	0.5	BU / BK	4977	II	—	AUTOSAR CAN Bus [+] 3 Serial Data	16	0.5	BU / BK	4977	IV	—
17	0.5	WH	4976	II	—	AUTOSAR CAN Bus [-] 3 Serial Data	17	0.5	WH	4976	IV	—
18	—	—	—	—	—	Not Occupied	18	—	—	—	—	—
19	0.5	BU / YE	4979	II	—	AUTOSAR CAN Bus [+] 2 Serial Data	19	0.5	BU / YE	4979	IV	—
20	0.5	WH	4978	II	—	AUTOSAR CAN Bus [-] 2 Serial Data	20	0.5	WH	4978	IV	—

X402A Body Wiring Harness to Chassis Wiring Harness

FIGURESIO=6217827 Owner=Owner, Schematics
LMD=26-Jan-2023



5810829



5757466

Connector Part Information

Harness Type: Body Wiring Harness COAX
OEM Connector: 35187033
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(WH)

Connector Part Information

Harness Type: Chassis Wiring Harness COAX
OEM Connector: 33338240
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way M Coax Type, Sealed(WH)

Terminal Part Information

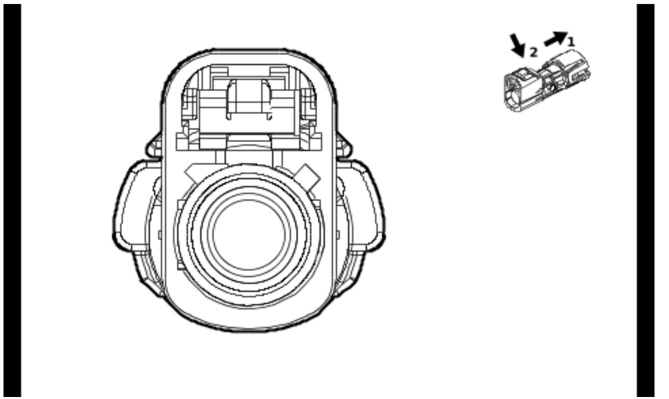
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X402A Body Wiring Harness to Chassis Wiring Harness

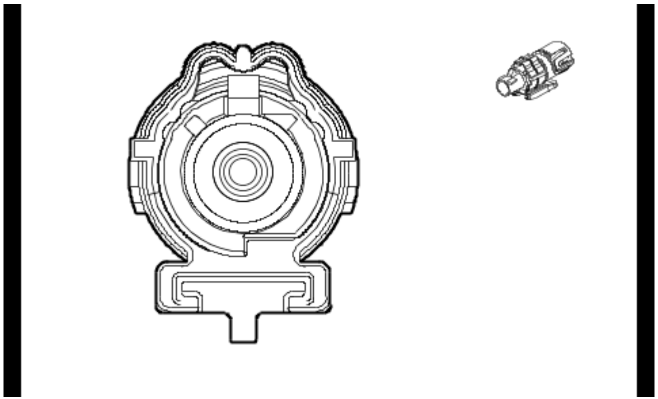
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	Coax Cable	—	I	—	Trailer 2 Rear Vision Camera Coaxial Video Signal	—	—	Coax Cable	—	I	—

X402B Body Wiring Harness to Chassis Wiring Harness

FIGURESIO=6217828 Owner=Owner, Schematics
LMD=26-Jan-2023



5758030



5758019

Connector Part Information

Harness Type: Body Wiring Harness COAX
OEM Connector: 35187032
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness COAX
OEM Connector: 33338239
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way M Coax Type, Sealed(BK)

Terminal Part Information

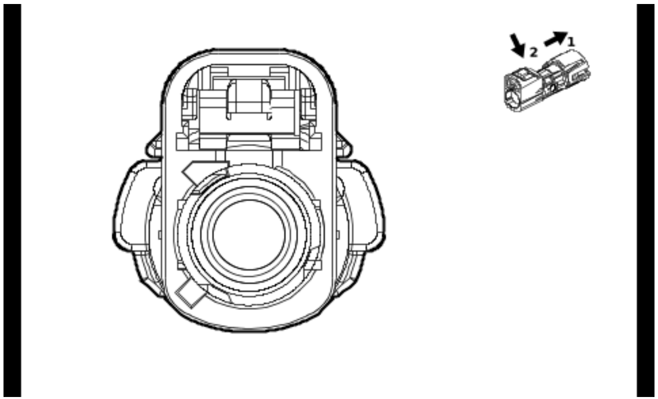
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X402B Body Wiring Harness to Chassis Wiring Harness

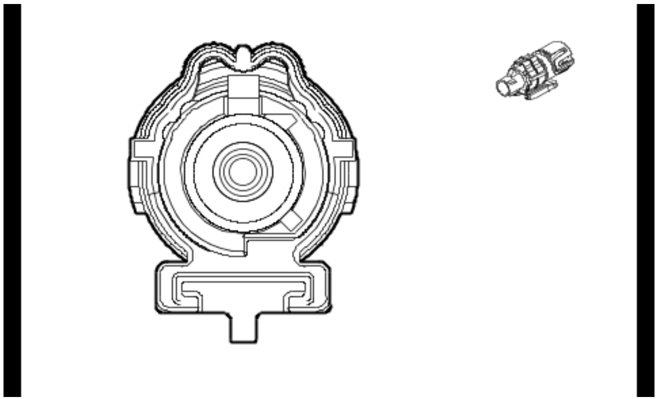
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	Coax Cable	—	I	—	Trailer Rear Vision Camera Coaxial Video Signal	—	—	Coax Cable	—	I	—

X402C Body Wiring Harness to Chassis Wiring Harness

FIGURESIO=6217829 Owner=Owner, Schematics
LMD=26-Jan-2023



5810838



5758017

Connector Part Information

Harness Type: Body Wiring Harness COAX

OEM Connector: 35187037

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type(BN)

Connector Part Information

Harness Type: Chassis Wiring Harness COAX

OEM Connector: 33338245

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way M Coax Type, Sealed(BN)

Terminal Part Information

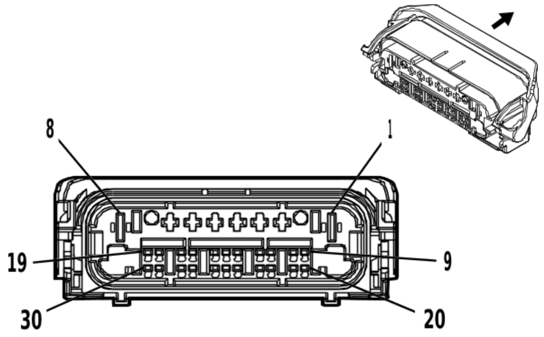
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X402C Body Wiring Harness to Chassis Wiring Harness

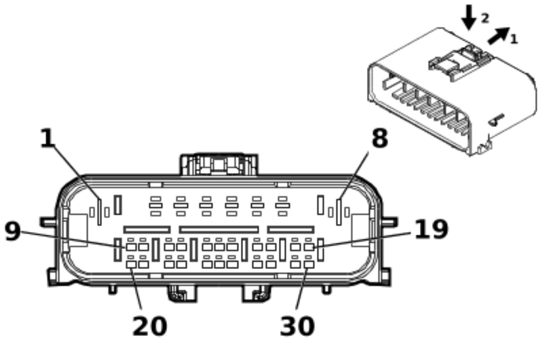
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	Coax Cable	—	I	—	Rear Vision Camera Coaxial Video Signal	—	—	Coax Cable	—	I	—

X404 Emission Reduction Fluid Tank Reservoir Wire Harness to Chassis Wiring Harness

FIGURESIO=6217830 Owner=Owner, Schematics LMD=26-Jan-2023



4650150



5377298

Connector Part Information

Harness Type: Emission Reduction Fluid Tank Reservoir Wire Harness

OEM Connector: Not Available

Service Connector: Service by Harness - See Part Catalog

Description: 30-Way F

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 35538391

Service Connector: 84861014

Description: 30-Way M 1.2 MCON, 2.8, 6.3 MCP Series, Sealed(GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	13575376	J-35616-32 (OG)	J-38125-36
III	13578827	J-35616-5 (PU)	J-38125-36
IV	19330704	J-35616-13 (L-BU)	J-38125-215A

X404 Emission Reduction Fluid Tank Reservoir Wire Harness to Chassis Wiring Harness

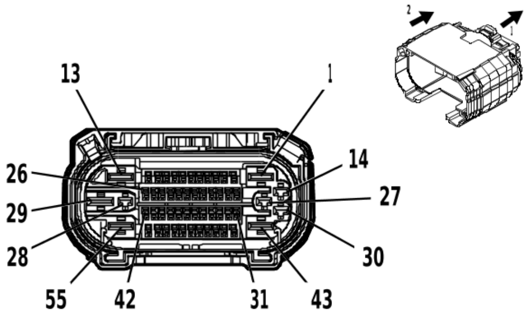
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD / WH	2040	I	—	Battery Positive Voltage	1	2.5	RD / WH	2040	II	—
2	1.5	RD / WH	3440	I	—	Battery Positive Voltage	2	1.5	RD / WH	3440	III	—
3 - 6	—	—	—	—	—	Not Occupied	3 - 6	—	—	—	—	—
7	2.5	BK / WH	1151	I	—	Signal Ground	7	2.5	BK / WH	1151	III	—
8	1	BK / WH	1151	I	—	Signal Ground	8	1	BK / WH	1151	II	—
9 - 10	—	—	—	—	—	Not Occupied	9 - 10	—	—	—	—	—
11	0.5	BU / BK	4977	I	—	AUTOSAR CAN Bus [+] 3 Serial Data	11	0.5	BU / BK	4977	IV	—
12	0.5	WH	4976	I	—	AUTOSAR CAN Bus [-] 3 Serial Data	12	0.5	WH	4976	IV	—

X404 Emission Reduction Fluid Tank Reservoir Wire Harness to Chassis Wiring Harness (cont'd)

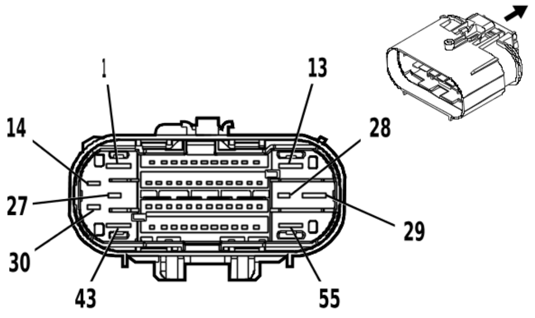
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
13 - 21	—	—	—	—	—	Not Occupied	13 - 21	—	—	—	—	—
22	0.5	BU / BK	4977	I	—	AUTOSAR CAN Bus [+] 3 Serial Data	22	0.5	BU / BK	4977	IV	—
23	0.5	WH	4976	I	—	AUTOSAR CAN Bus [-] 3 Serial Data	23	0.5	WH	4976	IV	—
24	—	—	—	—	—	Not Occupied	24	—	—	—	—	—
25	0.5	VT / WH	639	I	—	Run/Crank Ignition 1 Voltage	25	0.5	VT / WH	639	IV	—
26 - 30	—	—	—	—	—	Not Occupied	26 - 30	—	—	—	—	—

X410 Body Wiring Harness to Chassis Wiring Harness

FIGURESIO=6217831 Owner=Owner, Schematics
LMD=26-Jan-2023



4992168



4993301

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35016652
Service Connector: 19371185
Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35205173
Service Connector: 84727364
Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19332901	J-35616-35 (VT)	J-38125-212
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	19371217	J-35616-12 (L-BU)	J-38125-553
IV	84634921	J-35616-42 (RD)	J-38125-212
V	84847992	J-35616-32 (OG)	J-38125-36
VI	84867140	J-35616-13 (L-BU)	J-38125-215A
VII	84992391	J-35616-5 (PU)	J-38125-215A

X410 Body Wiring Harness to Chassis Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	GY	4368	IV	—	Right Park Brake Motor Low Reference	1	4	GY	4368	V	—
2	0.75	BU / VT	1335	II	—	Right Rear Turn Signal Lamp Control 2	2	0.75	BU / VT	1335	VI	—
3	0.5	BN / YE	820	II	—	Center High Mounted Stop Lamp Supply Voltage	3	0.5	BN / YE	820	VI	—
4	0.5	GN / BU	2733	II	—	Brake System Control Module LIN Bus 2	4	0.5	GN / BU	2733	VI	—

X410 Body Wiring Harness to Chassis Wiring Harness (cont'd)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
5	0.35	BN / GN	3568	II	—	Rear Closure Passive Entry Antenna High Signal	5	0.5	BN / GN	3568	VI	—
6	0.35	GN / GY	3569	II	—	Rear Closure Passive Entry Antenna Low Signal	6	0.5	GN / GY	3569	VI	—
7	0.75	BU / WH	1334	II	—	Left Rear Turn Signal Lamp Control 2	7	0.75	BU / WH	1334	VI	—
8	0.5	WH / VT	1430	II	—	Exterior Courtesy Lamp Control	8	0.5	WH / VT	1430	VI	—
9	0.5	GN / YE	1616	II	—	Rear Brake Pad Wear Sensor Signal	9	0.5	GN / YE	1616	VI	—
10	0.5	WH / BK	2223	II	—	Trailer Brake Apply Signal	10	0.5	WH / BK	2223	VI	—
11	0.35	GN / YE	2862	II	—	Body Control Module LIN Bus 16	11	0.5	GN / YE	2862	VI	—
12	1	BK	9003	III	—	Cavity Seal	12	1	BK	9001	VI	—
13	2.5	GN / VT	1988	IV	—	Right Park Brake Motor Apply Control	13	4	GN / VT	1988	V	—
14	2.5	RD / VT	4442	I	—	Primary Fused Battery Positive Voltage	14	2.5	RD / VT	4442	VII	—
15	0.5	BU / YE	4979	II	—	AUTOSAR CAN Bus [+] 2 Serial Data	15	0.5	BU / YE	4979	VI	—
16	0.5	WH	4978	II	—	AUTOSAR CAN Bus [-] 2 Serial Data	16	0.5	WH	4978	VI	—
17	0.5	WH	4976	II	—	AUTOSAR CAN Bus [-] 3 Serial Data	17	0.5	WH	4976	VI	—
18	0.5	BU / BK	4977	II	—	AUTOSAR CAN Bus [+] 3 Serial Data	18	0.5	BU / BK	4977	VI	—
19	0.35	WH / BK	7544	II	—	Right Rear Turn Signal Lamp Feedback Signal	19	0.75	WH / BK	7544	VI	—
20	0.5	BN / BU	1602	II	—	Front Brake Pad Wear Sensor Signal	20	0.5	BN / BU	1602	VI	—
21	0.5	VT	882	II	—	Right Rear Wheel Speed Sensor Signal	21	0.5	VT	882	VI	—
22	0.5	GY / YE	7128	II	—	Right Rear Wheel Speed Sensor Control	22	0.5	GY / YE	7128	VI	—

X410 Body Wiring Harness to Chassis Wiring Harness (cont'd)

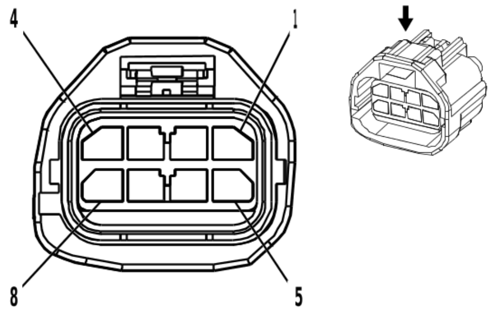
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
23	0.5	BU	884	II	—	Left Rear Wheel Speed Sensor Signal	23	0.5	BU	884	VI	—
24	0.5	GY / BK	7127	II	—	Left Rear Wheel Speed Sensor Control	24	0.5	GY / BK	7127	VI	—
25	0.5	GY	830	II	—	Left Front Wheel Speed Sensor Signal	25	0.5	GY	830	VI	—
26	0.5	GY / WH	7064	II	—	Left Front Wheel Speed Sensor Control	26	0.5	GY / WH	7064	VI	—
27	2	BU	47	I	—	Trailer Auxiliary Control	27	2.5	BU	47	VII	—
28	0.5	BN / GN	4246	I	—	Identification Lamp Control	28	0.5	BN / GN	4246	VII	—
29	2.5	WH	2001	IV	—	Left Park Brake Motor Apply Control	29	4	WH	2001	V	—
30	0.35	GY	7292	I	—	Major Endgate Release Switch Signal Exterior	30	0.5	GY	7292	VII	—
31	0.5	BN	10119	II	—	AC Outlet 2 Low Reference	31	0.5	BN	10119	VI	—
32	0.75	RD / WH	10121	II	—	AC Outlet 2 Phase B Control	32	0.75	RD / WH	10121	VI	—
33	0.5	GY / BU	7762	II	—	Cargo Lamp Control	33	0.5	GY / BU	7762	VI	—
34	0.5	YE / BK	2224	II	—	Trailer Brake Enable Signal	34	0.5	YE / BK	2224	VI	—
35	0.5	GN / BN	2266	II	—	DC/AC Inverter Control 2	35	0.5	GN / BN	2266	VI	—
36	0.5	BN / WH	2374	II	—	Object Sensor Voltage Reference	36	0.5	BN / WH	2374	VI	—
37	0.5	YE	2375	II	—	Left Rear Outer Parking Assist Sensor Signal	37	0.5	YE	2375	VI	—
38	0.5	YE / BU	2376	II	—	Left Rear Middle Parking Assist Sensor Signal	38	0.5	YE / BU	2376	VI	—
39	0.5	YE / WH	2377	II	—	Right Rear Middle Parking Assist Sensor Signal	39	0.5	YE / WH	2377	VI	—

X410 Body Wiring Harness to Chassis Wiring Harness (cont'd)

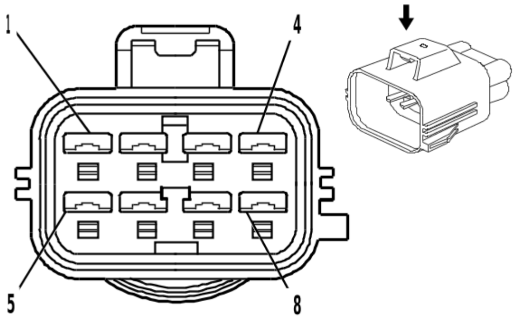
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
40	0.5	YE / VT	2378	II	—	Right Rear Outer Parking Assist Sensor Signal	40	0.5	YE / VT	2378	VI	—
41	0.5	BK / GY	2379	II	—	Object Sensor Low Reference	41	0.5	BK / GY	2379	VI	—
42	0.5	GN / WH	24	II	—	Backup Lamp Control	42	0.5	GN / WH	24	VI	—
43	2.5	GY / BK	4369	IV	—	Left Park Brake Motor Low Reference	43	4	GY / BK	4369	V	—
44	0.75 1	BK / WH BK	10120 9003	II III	KC9/ KCA - KC9/ KCA	AC Outlet 2 Phase A Control Cavity Seal	44	0.75 1	BK / WH BK	10120 9000	VI VI	KC9/ KCA - KC9/ KCA
45	0.35	YE	7294	II	—	Minor Endgate Release Switch Discrete Signal Exterior	45	0.5	YE	7294	VI	—
46	0.5	VT / RD	4049	II	—	AC Power Outlet Sensor High Reference	46	0.5	VT / RD	4049	VI	—
47	0.5	YE / GN	2024	II	—	Animation Lighting Control	47	0.5	YE / GN	2024	VI	—
48	0.35	WH / YE	7541	II	—	Right Rear Stop Lamp Control	48	0.75	WH / YE	7541	VI	—
49	0.75	GY / YE	7542	II	—	Left Rear Stop Lamp Control	49	0.75	GY / YE	7542	VI	—
50	0.5	VT / BK	739	II	—	Run/Crank Ignition 1 Voltage	50	0.5	VT / WH	739	VI	—
51	0.35	WH / VT	6567	II	—	Rear Turn Signal Lamp Feedback Signal	51	0.75	WH / VT	6567	VI	—
52	0.5	GN / YE	6846	II	—	Rear License Plate Lamp Control	52	0.5	GN / YE	6846	VI	—
53	0.75	BN / BU	6993	II	—	Left Rear Park Lamp Control	53	0.75	BN / BU	6993	VI	—
54	0.75	BN / GY	6995	II	—	Right Rear Park Lamp Control	54	0.75	BN / GY	6995	VI	—
55	2.5	RD / BN	4142	IV	—	Battery Positive Voltage Primary Fused Battery Positive Voltage	55	4 2.5	RD / BN RD / BN	3640 3640	V V	- JL1 JL1

X412 Assist Step Motor Jumper Wiring Harness - Left to Chassis Wiring Harness (BRS)

FIGURESIO=6217832 Owner=Owner, Schematics LMD=26-Jan-2023



1401778



1856785

Connector Part Information

Harness Type: Assist Step Motor Jumper Wiring Harness - Left

OEM Connector: Not Available

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 15419459

Service Connector: 19367561

Description: 8-Way M 2.8 Series, Sealed(D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	J-35616-5 (PU)	No Tool Required

X412 Assist Step Motor Jumper Wiring Harness - Left to Chassis Wiring Harness (BRS)

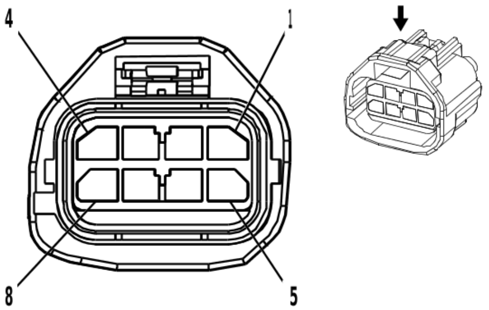
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2	WH / BN	7471	I	—	Left Running Board Step Motor Control Extend	1	2	WH / BN	7471	II	—
2	0.5	VT / RD	7468	I	—	Left Running Board Step Motor Hall Sensor 5V Reference	2	0.5	VT / RD	7468	II	—
3	0.5	YE	7467	I	—	Left Running Board Step Motor Hall Sensor Signal	3	0.5	YE	7467	II	—
4	0.5	YE / BN	7466	I	—	Left Running Board Step Motor Hall Sensor Low Reference	4	0.5	YE / BN	7466	II	—
5	2	GY	7472	I	—	Left Running Board Step Motor Control Retract	5	2	GY	7472	II	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—

X412 Assist Step Motor Jumper Wiring Harness - Left to Chassis Wiring Harness (BRS) (cont'd)

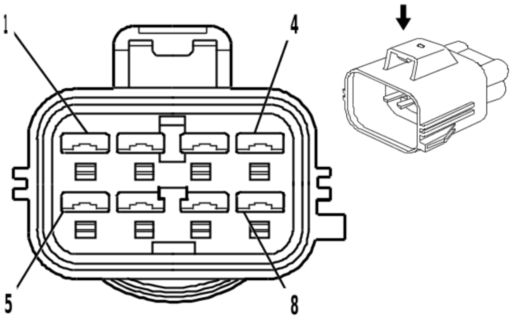
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
7	0.5	BN	4748	I	—	Left Running Board Step Courtesy Lamp Control	7	0.5	BN	4748	II	—
8	0.5	BK	1850	I	—	Ground	8	0.5	BK	1850	II	—

X413 Assist Step Motor Jumper Wiring Harness - Right to Chassis Wiring Harness (BRS)

FIGURESIO=6217833 Owner=Owner, Schematics LMD=26-Jan-2023



1401778



1856785

Connector Part Information

Harness Type: Assist Step Motor Jumper Wiring Harness - Right

OEM Connector: Not Available

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 15419459

Service Connector: 19367561

Description: 8-Way M 2.8 Series, Sealed(D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	J-35616-5 (PU)	No Tool Required

X413 Assist Step Motor Jumper Wiring Harness - Right to Chassis Wiring Harness (BRS)

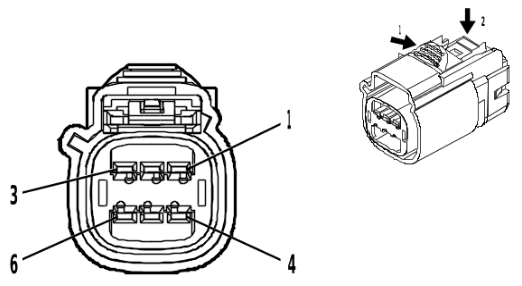
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2	BU	7470	I	—	Right Running Board Step Motor Control Extend	1	2	BU	7470	II	—
2	0.5	GN / RD	7464	I	—	Right Running Board Step Motor Hall Sensor 5V Reference	2	0.5	GN / RD	7464	II	—
3	0.5	VT	7465	I	—	Right Running Board Step Motor Hall Sensor Signal	3	0.5	VT	7465	II	—
4	0.5	YE / BK	7463	I	—	Right Running Board Step Motor Hall Sensor Low Reference	4	0.5	YE / BK	7463	II	—

X413 Assist Step Motor Jumper Wiring Harness - Right to Chassis Wiring Harness (BRS) (cont'd)

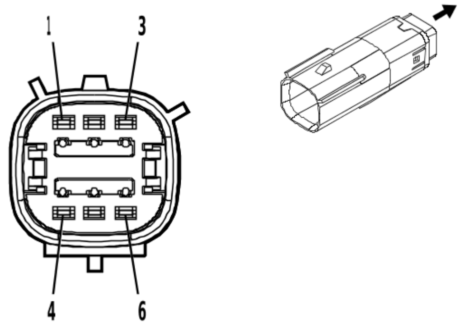
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
5	2	GN	7469	I	—	Right Left Running Board Step Motor Control Retract	5	2	GN	7469	II	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—
7	0.5	GY / VT	4749	I	—	Right Running Board Step Courtesy Lamp Control	7	0.5	GY / VT	4749	II	—
8	0.5	BK	1850	I	—	Ground	8	0.5	BK	1850	II	—

X414 Chassis Rear Wiring Harness to Chassis Wiring Harness

FIGURESIO=6217834 Owner=Owner, Schematics LMD=26-Jan-2023



4996962



4992963

Connector Part Information

Harness Type: Chassis Rear Wiring Harness
OEM Connector: 15513505
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 1.5 OCS Series, Sealed(GY)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 15513475
Service Connector: 19371205
Description: 6-Way M 1.5 OCS Series, Sealed(GY)

Terminal Part Information

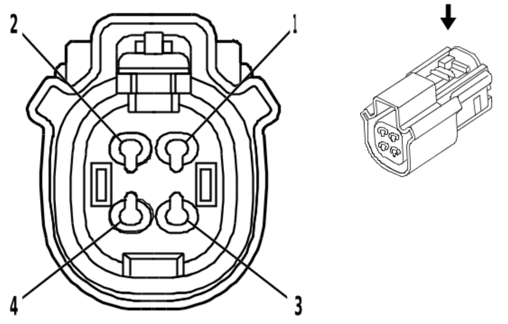
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	Not required	J-35616-3 (GY)	No Tool Required

X414 Chassis Rear Wiring Harness to Chassis Wiring Harness

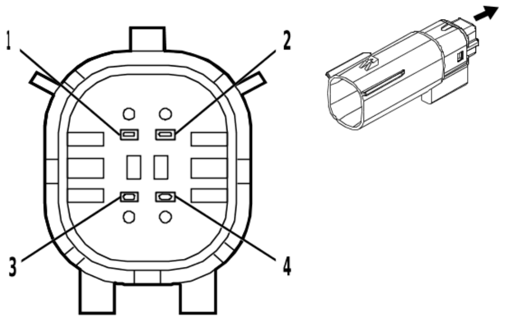
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BK / WH	10120	I	—	AC Outlet 2 Phase A Control	1	0.75	BK / WH	10120	II	—
2	0.5	BN	10119	I	—	AC Outlet 2 Low Reference	2	0.5	BN	10119	II	—
3	0.5	VT / RD	4049	I	—	AC Power Outlet Sensor High Reference	3	0.5	VT / RD	4049	II	—
4	0.75	RD / WH	10121	I	—	AC Outlet 2 Phase B Control	4	0.75	RD / WH	10121	II	—
5	0.5	GN / BN	2266	I	—	DC/AC Inverter Control 2	5	0.5	GN / BN	2266	II	—
6	0.5	BK	1750	I	—	Ground	6	1.5	BK	1750	II	—

X415 Engine Wiring Harness Chassis to Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness (L5P)

FIGURESIO=6217835 Owner=Owner, Schematics LMD=26-Jan-2023



1960031



2368875

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 33346391
Service Connector: 19368217
Description: 4-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 4-Way M (BK)

Terminal Part Information

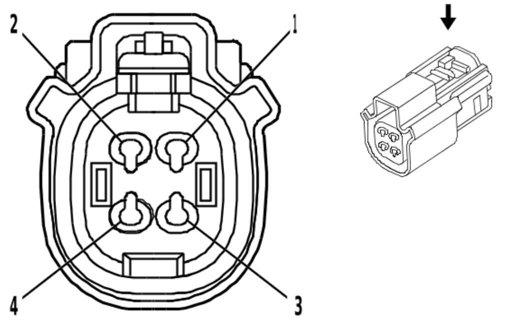
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-2A (GY)	No Tool Required
III	Not required	No Tool Required	No Tool Required

X415 Engine Wiring Harness Chassis to Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness (L5P)

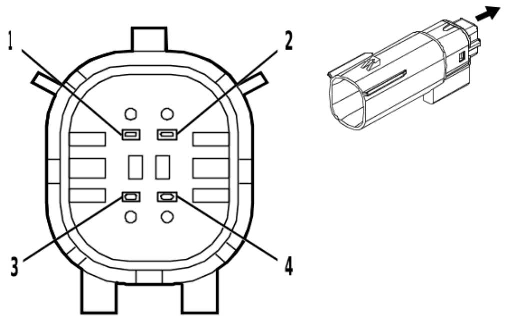
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	GY / BK	1570	II	—	Front Axle Actuator Control	1	0.5	GY / BK	1570	III	—
2	0.5	YE / WH	1695	II	—	4WD Locked Range Indicator Control	2	0.5	YE / WH	1695	III	—
3	0.5	GN	8016	II	—	Secondary Axle Motor Control	3	0.5	GN	8016	III	—
4	1.5	BK	450	I	—	Ground	4	1.5	BK	450	III	—

X415 Engine Wiring Harness Chassis to Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness (L8T)

FIGURESIO=6217836 Owner=Owner, Schematics LMD=26-Jan-2023



1960031



2368875

Connector Part Information

Harness Type: Engine Wiring Harness

OEM Connector: 33346391

Service Connector: 19368217

Description: 4-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness

OEM Connector: 33344515

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

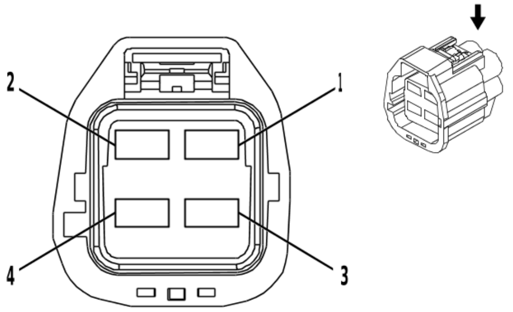
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-2A (GY)	No Tool Required
III	Not required	J-35616-3 (GY)	No Tool Required

X415 Engine Wiring Harness Chassis to Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness (L8T)

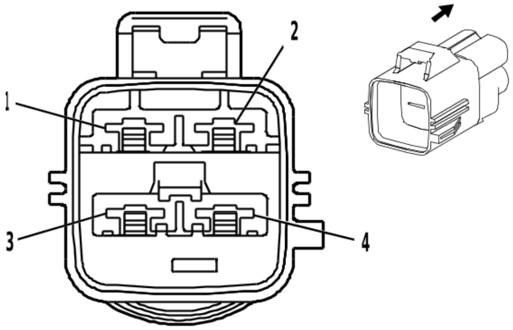
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	GY / BK	1570	II	—	Front Axle Actuator Control	1	0.5	GY / BK	1570	III	—
2	0.5	YE / WH	1695	II	—	4WD Locked Range Indicator Control	2	0.5	YE / WH	1695	III	—
3	0.5	GN	8016	II	—	Secondary Axle Motor Control	3	0.5	GN	8016	III	—
4	1.5	BK	450	I	—	Ground	4	0.5	BK	450	III	—

X420A Chassis Rear Wiring Harness Extension Harness to Chassis Wiring Harness

FIGURESIO=6217837 Owner=Owner, Schematics LMD=26-Jan-2023



2852121



1853524

Connector Part Information

Harness Type: Chassis Rear Wiring Harness Extension Harness

OEM Connector: 7283-3601-10

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 6.3 Series, Sealed(GY)

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 33360098

Service Connector: 19371198

Description: 4-Way M 6.3 Series, Sealed(GY)

Terminal Part Information

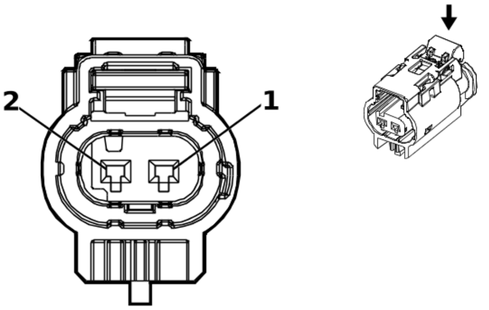
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-43 (RD)	No Tool Required

X420A Chassis Rear Wiring Harness Extension Harness to Chassis Wiring Harness

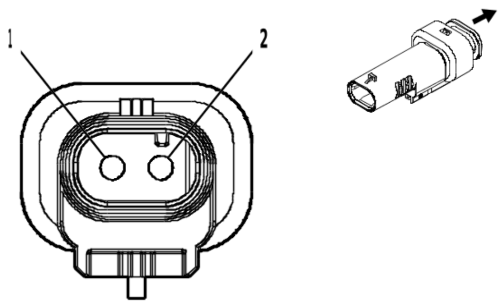
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	WH	2001	I	—	Left Park Brake Motor Apply Control	1	4	WH	2001	II	—
2	2.5	GN / BK	4369	I	—	Left Park Brake Motor Low Reference	2	4	GY / BK	4369	II	—
3	2.5	GN / VT	1988	I	—	Right Park Brake Motor Apply Control	3	4	GN / VT	1988	II	—
4	2.5	GY	4368	I	—	Right Park Brake Motor Low Reference	4	4	GY	4368	II	—

X420B Chassis Rear Wiring Harness Extension Harness to Chassis Wiring Harness (JBP)

FIGURESIO=6217838 Owner=Owner, Schematics LMD=26-Jan-2023



5207726



4992757

Connector Part Information

Harness Type: Chassis Rear Wiring Harness Extension Harness

OEM Connector: 10094237

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.2 Multilock Series, Sealed(GY)

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 33356666

Service Connector: 19371200

Description: 2-Way M 1.2 MLK Series, Sealed(GY)

Terminal Part Information

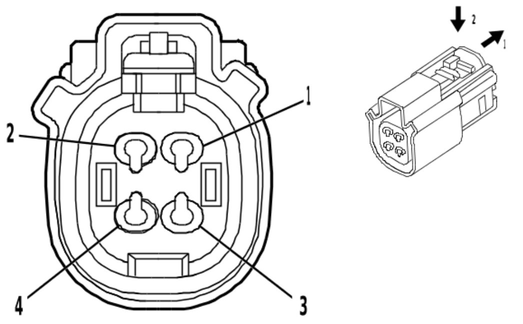
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-13 (L-BU)	No Tool Required

X420B Chassis Rear Wiring Harness Extension Harness to Chassis Wiring Harness (JBP)

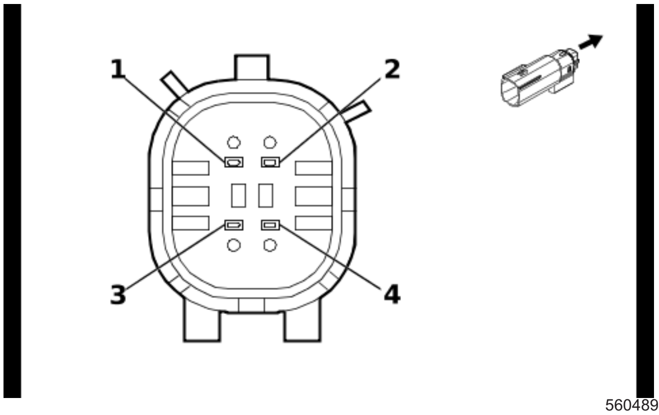
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	GN / YE	1616	I	—	Rear Brake Pad Wear Sensor Signal	1	0.5	GN / YE	1616	II	—
2	0.75	BK / WH	1751	I	—	Signal Ground Signal Ground	2	1 0.75	BK / WH BK / WH	1151 1151	II II	JBP- G94- (NV8/ BRS/ L5P) JBP+ (NV8/ BRS/ L5P) - G94

X420B Chassis Wiring Harness to Chassis Rear Wiring Harness Extension Harness (JBP&G94)

FIGURESIO=6217839 Owner=Owner, Schematics LMD=26-Jan-2023



3960090



5604894

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 35429710

Service Connector: 19368970

Description: 4-Way F 1.5 MX Series, Sealed(GY)

Connector Part Information

Harness Type: Chassis Rear Wiring Harness Extension Harness

OEM Connector: 33482-4002

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way M 1.5 MX Series, Sealed(GY)

Terminal Part Information

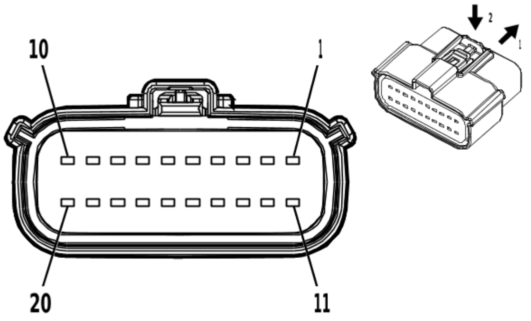
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-3 (GY)	No Tool Required

X420B Chassis Wiring Harness to Chassis Rear Wiring Harness Extension Harness (JBP&G94)

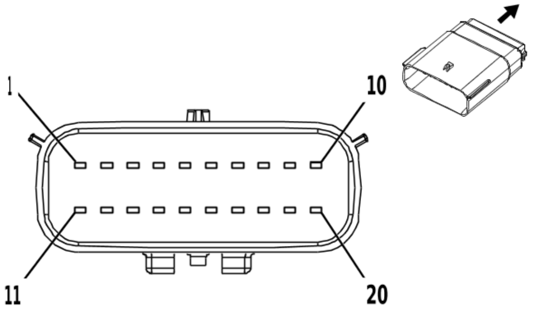
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	GN / YE	1616	I	—	Rear Brake Pad Wear Sensor Signal	1	0.75	GN / YE	1616	II	—
2	0.75	BK / WH	1151	I	—	Signal Ground	2	0.75	BK / WH	1751	II	—
3	0.75	GY / BK	7253	I	—	Rear Differential Lock Actuator Low Control	3	0.75	GY / BK	7253	II	—
4	0.75	VT / BN	7258	I	—	Rear Differential Lock Actuator Control	4	0.75	VT / BN	7258	II	—

X424 Body Wiring Harness to Chassis Wiring Harness - Chassis Cab

FIGURESIO=6217840 Owner=Owner, Schematics LMD=27-Jan-2023



4574194



2871861

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35600460
Service Connector: 19300557
Description: 20-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35504158
Service Connector: 19351705
Description: 20-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217
II	86800300	J-35616-3 (GY)	J-38125-217

X424 Body Wiring Harness to Chassis Wiring Harness - Chassis Cab

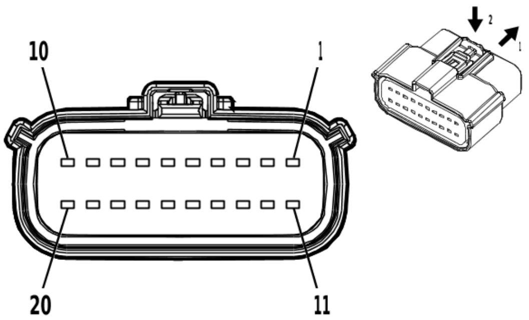
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	YE	7115	I	—	Rear Axle Differential Lock Indicator Control	1	—	—	—	—	—
2	0.35	YE / GN	7122	I	—	Axle Differential Lock Switch Signal	2	—	—	—	—	—
3 - 10	—	—	—	—	—	Not Occupied	3 - 10	—	—	—	—	—
11	0.5	WH	4986	I	—	AUTOSAR CAN Bus [-] 1 Serial Data	11	0.5	WH	4986	II	—
12	0.5	BU	4987	I	—	AUTOSAR CAN Bus [+] 1 Serial Data	12	0.5	BU	4987	II	—
13 - 16	—	—	—	—	—	Not Occupied	13 - 16	—	—	—	—	—
17	0.5	WH	4986	I	—	AUTOSAR CAN Bus [-] 1 Serial Data	17	0.5	WH	4986	II	—
18	0.5	BU	4987	I	—	AUTOSAR CAN Bus [+] 1 Serial Data	18	0.5	BU	4987	II	—

X424 Body Wiring Harness to Chassis Wiring Harness - Chassis Cab (cont'd)

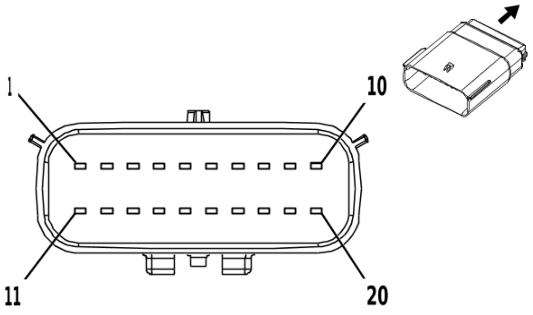
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
19 - 20	—	—	—	—	—	Not Occupied	19 - 20	—	—	—	—	—

X424 Body Wiring Harness to Chassis Wiring Harness - without Chassis Cab

FIGURESIO=6217841 Owner=Owner, Schematics LMD=27-Jan-2023



4574194



2871861

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35600460
Service Connector: 19300557
Description: 20-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33181044
Service Connector: 19351705
Description: 20-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217
II	86800300	J-35616-3 (GY)	J-38125-217

X424 Body Wiring Harness to Chassis Wiring Harness - without Chassis Cab

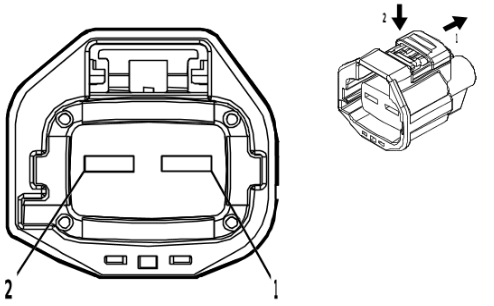
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	—	—	—	—	Rear Axle Differential Lock Indicator Control	1	0.5	YE	7115	II	—
2	—	—	—	—	—	Axle Differential Lock Switch Signal	2	0.5	YE / GN	7122	II	—
3	0.5	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	3	0.5	WH	4100	II	—
4	0.5	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	4	0.5	BU / VT	4101	II	—
5 - 8	—	—	—	—	—	Not Occupied	5 - 8	—	—	—	—	—
9	0.35	YE	1144	I	—	Endgate Release Switch Discrete Signal Exterior	9	0.5	YE	1144	II	—
10	1	GN	1299	I	—	Major Endgate Motor Control	10	1	GN	1299	II	—

X424 Body Wiring Harness to Chassis Wiring Harness - without Chassis Cab (cont'd)

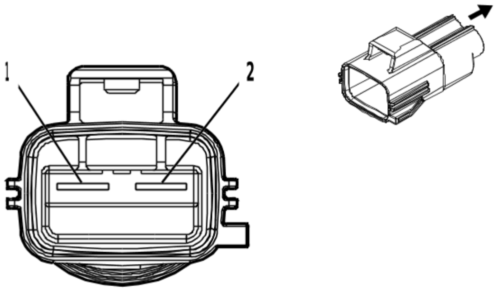
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
11	0.5	WH	4986	I	—	AUTOSAR CAN Bus [-] 1 Serial Data	11	0.5	WH	4986	II	—
12	0.5	BU	4987	I	—	AUTOSAR CAN Bus [+] 1 Serial Data	12	0.5	BU	4987	II	—
13	0.35	YE / BU	7295	I	—	Left Minor Endgate Ajar Signal	13	0.75	YE / BU	7295	II	—
14	—	—	—	—	—	Not Occupied	14	—	—	—	—	—
15	1	VT	7725	I	—	Minor Endgate Motor Control	15	1	VT	7725	II	—
16	1	YE / BK	7730	I	—	Major Endgate Motor Low Reference	16	1	YE / BK	7730	II	—
17	0.5	WH	4986	I	—	AUTOSAR CAN Bus [-] 1 Serial Data	17	0.5	WH	4986	II	—
18	0.5	BU	4987	I	—	AUTOSAR CAN Bus [+] 1 Serial Data	18	0.5	BU	4987	II	—
19 - 20	—	—	—	—	—	Not Occupied	19 - 20	—	—	—	—	—

X426 Chassis Wiring Harness to Chassis Wiring Harness

FIGURESIO=6217842 Owner=Owner, Schematics
LMD=26-Jan-2023



4584202



4789729

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 13888959
Service Connector: 19368222
Description: 2-Way F 6.3 Series, Sealed(D-GY)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35063672
Service Connector: 19368221
Description: 2-Way M 6.3 YESC Series, Sealed(GY)

Terminal Part Information

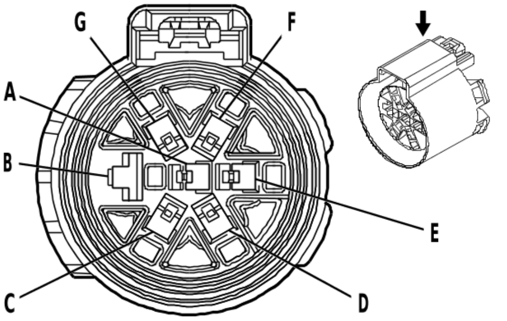
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-43 (RD)	No Tool Required

X426 Chassis Wiring Harness to Chassis Wiring Harness

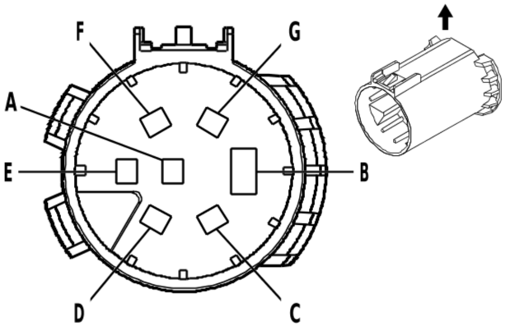
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	4	RD / BU	3940	I	—	Battery Positive Voltage	1	4	OG	3640	II	—
2	—	—	—	—	—	Not Occupied	2	—	—	—	—	—

X480 Chassis Wiring Harness to Trailer Rear Wiring Harness

FIGURESIO=6217843 Owner=Owner, Schematics LMD=26-Jan-2023



2056936



366087

Connector Part Information

Harness Type: Chassis Wiring Harness

OEM Connector: 13857223

Service Connector: 86816072

Description: 7-Way F 280, 630 Metri-Pack Series, Sealed(BK)

Connector Part Information

Harness Type: Trailer Rear Wiring Harness

OEM Connector: 15317327

Service Connector: Service by Harness - See Part Catalog

Description: 7-Way M 280 Metri-Pack Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	Not required	J-35616-43 (RD)	No Tool Required
IV	Not required	J-35616-5 (PU)	No Tool Required

X480 Chassis Wiring Harness to Trailer Rear Wiring Harness

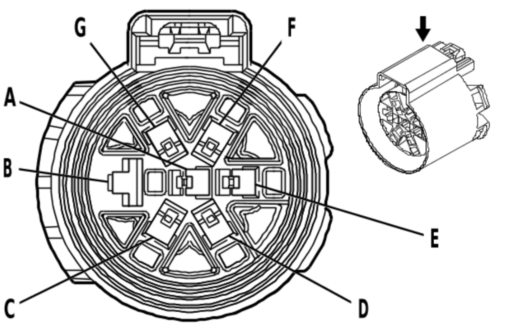
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
A	1 1	GY GY	5189 1624	II II	UET UY2/ Z6A	Trailer Back-up Lamp Control Trailer Back-up Lamp Control	A	1	GY	1624	IV	—
B	5	WH	22	I	—	Trailer Ground	B	5	WH	22	III	—
C	4	BU	47	II	—	Trailer Auxiliary Control	C	4	BU	47	IV	—
D	1	GN	1619	II	—	Right Rear Trailer Stop/ Turn Lamp Control	D	1	GN	1619	IV	—
E	4 4	OG OG	3940 3640	II II	L8T UY2/ Z6A	Battery Positive Voltage Battery Positive Voltage	E	4	OG	3640	IV	—
F	1 1.5	BN BN	2109 2109	II II	UET - UET	Trailer Park Lamp Control Trailer Park Lamp Control	F	2	BN	2109	IV	—

X480 Chassis Wiring Harness to Trailer Rear Wiring Harness (cont'd)

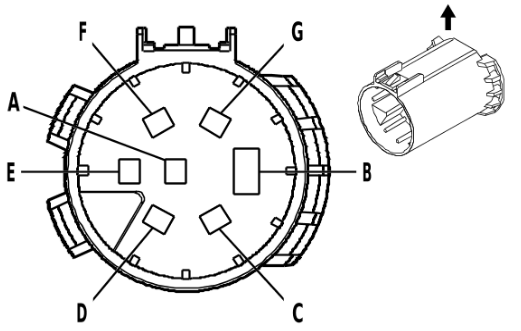
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
G	1	YE	1618	II	—	Left Rear Trailer Stop/ Turn Lamp Control	G	1	YE	1618	IV	—

X481 Trailer Rear Wiring Harness to Trailer Rear Wiring Harness

FIGURESIO=6217844 Owner=Owner, Schematics LMD=26-Jan-2023



2056936



366087

Connector Part Information

Harness Type: Trailer Rear Wiring Harness
OEM Connector: 13857223
Service Connector: Service by Harness - See Part Catalog
Description: 7-Way F 280, 630 Metri-Pack Series, Sealed(BK)

Connector Part Information

Harness Type: Trailer Rear Wiring Harness
OEM Connector: 15317327
Service Connector: Service by Harness - See Part Catalog
Description: 7-Way M 280 Metri-Pack Series, Sealed(BK)

Terminal Part Information

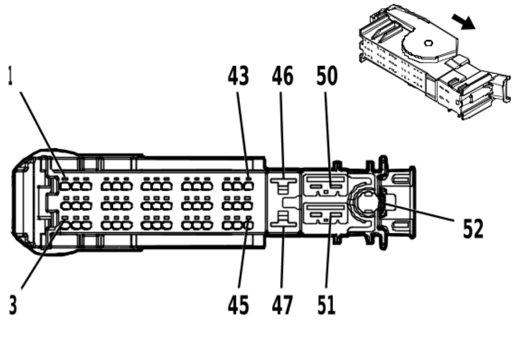
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-42 (RD)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	Not required	J-35616-43 (RD)	No Tool Required
IV	Not required	J-35616-5 (PU)	No Tool Required

X481 Trailer Rear Wiring Harness to Trailer Rear Wiring Harness

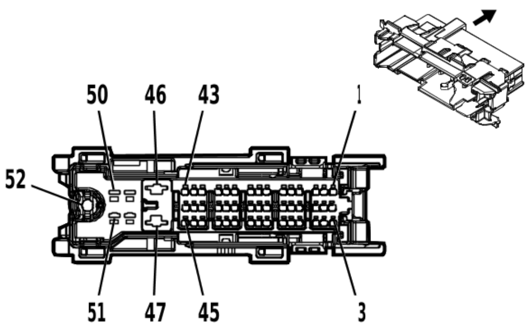
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
A	1	GY	1624	II	—	Trailer Back-up Lamp Control	A	1	GY	1624	IV	—
B	5	WH	22	I	—	Trailer Ground	B	5	WH	22	III	—
C	4	BU	47	II	—	Trailer Auxiliary Control	C	4	BU	47	IV	—
D	1	GN	1619	II	—	Right Rear Trailer Stop/ Turn Lamp Control	D	1	GN	1619	IV	—
E	4	OG	3640	II	—	Battery Positive Voltage	E	4	OG	3640	IV	—
F	1.5	BN	2109	II	—	Trailer Park Lamp Control	F	2	BN	2109	IV	—
G	1	YE	1618	II	—	Left Rear Trailer Stop/ Turn Lamp Control	G	1	YE	1618	IV	—

X500 Front Side Door Door Wiring Harness - Left to Body Wiring Harness

FIGURESIO=6217845 Owner=Owner, Schematics LMD=26-Jan-2023



4992530



4993484

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 35077349
Service Connector: Service by Harness - See Part Catalog
Description: 52-Way F 1.2, 2.8, 6.3, Coaxial Series(BK)

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35190453
Service Connector: 13527236
Description: 52-Way M 1.2, 2.8, 6.3, Coaxial Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-42 (RD)	No Tool Required
III	Not required	No Tool Required	No Tool Required
IV	19301536	J-35616-43 (RD)	J-38125-11A
V	84616651	J-35616-13 (L-BU)	J-38125-215A
VI	Service by Cable	No Tool Required	J-38125-12A

X500 Front Side Door Door Wiring Harness - Left to Body Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	—	—	—	—	Not Occupied	1	—	—	—	—	—
2	0.5	RD / BU	1240	I	—	Battery Positive Voltage	2	0.5	RD / BU	1240	V	—
3 - 6	—	—	—	—	—	Not Occupied	3 - 6	—	—	—	—	—
7	0.75	BN / BU	118	I	—	Left Front Speaker [-] Control 1	7	0.75	BN / BU	118	V	—
8	0.75	BU	201	I	—	Left Front Speaker 1 [+] Control	8	0.75	BU	201	V	—
9	0.5	OG / GN	2132	I	—	Left Front Side Impact Sensor Signal	9	0.5	OG / GN	2132	V	—

X500 Front Side Door Door Wiring Harness - Left to Body Wiring Harness (cont'd)

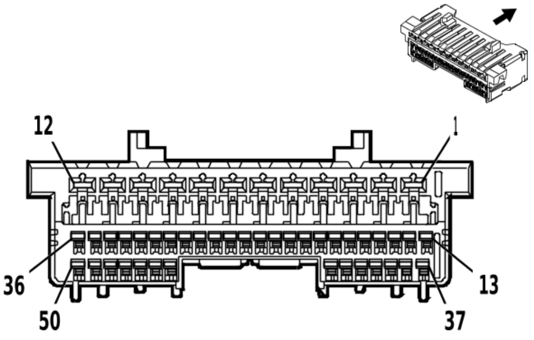
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
10	0.5	BK / OG	6628	I	—	Left Front Side Impact Sensor Low Reference	10	0.5	BK / OG	6628	V	—
11	0.5	VT	4301	I	—	Passive Entry Left Front Antenna Signal High	11	0.35	VT	4301	V	—
12	0.5	VT / GY	4302	I	—	Passive Entry Left Front Antenna Signal Low	12	0.35	VT / GY	4302	V	—
13	0.5	VT / GY	126	I	—	Left Front Door Open Switch Signal	13	0.35	VT / GY	126	V	—
14	0.5	YE / WH	1690	I	—	Mirror Dimming Signal	14	0.35	YE / WH	1690	V	—
15	0.5	BK / YE	1691	I	—	Automatic Day/Night Mirror Low Reference	15	0.35	BK / YE	1691	V	—
16	0.5	WH / GY	2114	I	—	Left Turn Signal Lamp Control 2	16	0.35	WH / GY	2114	V	—
17	0.5	BU	2675	I	—	Left Front Exterior Door Handle Switch Unlock Signal	17	0.35	BU	2675	V	—
18	0.75	WH	2679	I	—	Lock Actuators Unlock Control 1	18	0.75	WH	2679	V	—
19	0.75	GY	2681	I	—	Left Front Door Lock Actuator Lock Control	19	0.75	GY	2681	V	—
20 - 22	—	—	—	—	—	Not Occupied	20 - 22	—	—	—	—	—
23	0.5	WH / GN	5966	I	—	Approach Lamp Control	23	0.5	WH / GN	5966	V	—
24	—	—	—	—	—	Not Occupied	24	—	—	—	—	—
25	0.5	BU / GN	614	I	—	Seat Memory Switch Set Signal	25	0.35	BU / GN	614	V	—
26	0.5	BU / YE	7761	I	—	Backup Illumination Lamp Control	26	0.35	BU / YE	7761	V	—
27	—	—	—	—	—	LED Backlight Dimming Control 1	27	0.5	YE	6817	V	—
28	—	—	—	—	—	Not Occupied	28	—	—	—	—	—
29	0.5	GN / YE	6134	I	—	Body Control Module LIN Bus 3	29	0.35	GN / YE	6134	V	—

X500 Front Side Door Door Wiring Harness - Left to Body Wiring Harness (cont'd)

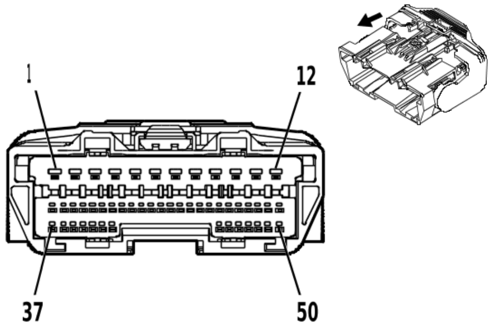
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
30	0.5	BN / GN	4246	I	—	Identification Lamp Control	30	0.5	BN / GN	4246	V	—
31	0.5	BK / WH	1551	I	—	Signal Ground	31	0.5	BK / WH	1551	V	—
32	0.35	YE / GY	2933	I	—	Task Lamp Control Left	32	0.35	YE / GY	2933	V	—
33	0.5	WH	615	I	—	Seat Memory Switch Signal 1	33	0.35	WH	615	V	—
34 - 45	—	—	—	—	—	Not Occupied	34 - 45	—	—	—	—	—
46	2.5	RD / GY	3540	II	—	Battery Positive Voltage	46	2.5	RD / GY	3540	IV	—
47	2.5	BK	1550	II	—	Ground	47	2.5	BK	1550	IV	—
48 - 51	—	—	—	—	—	Not Occupied	48 - 51	—	—	—	—	—
52	0	BK	4725	III	—	Left Sideview Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	52	0	—	4725	VI	—

X505 Front Side Door Door Wiring Harness - Left to Front Side Door Door Lock Door Wiring Harness - Left

FIGURESIO=6217846 Owner=Owner, Schematics LMD=26-Jan-2023



4997556



5022037

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Left
OEM Connector: 35283943
Service Connector: Service by Harness - See Part Catalog
Description: 50-Way F 1.2, 2.8 OCS Series(BK)

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Left
OEM Connector: 33390111
Service Connector: Service by Harness - See Part Catalog
Description: 50-Way M 1.2, 2.8 OCS Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	Not required	J-35616-13 (L-BU)	No Tool Required
IV	Not required	J-35616-5 (PU)	No Tool Required

X505 Front Side Door Door Wiring Harness - Left to Front Side Door Door Lock Door Wiring Harness - Left

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	RD / BU	1240	II	—	Battery Positive Voltage	1	0.5	RD / BU	1240	IV	—
2	0.5	GY / YE	1760	II	—	Left Side Object Detection LED Control	2	0.35	GY / YE	1760	IV	—
3	—	—	—	—	—	Not Occupied	3	—	—	—	—	—
4	0.5	GY / GN	2763	II	—	Window Switch Left Front Up Signal	4	0.5	GY / GN	2763	IV	—
5	0.5	BN	10201	II	—	Left Front Mirror Motor Extend Control	5	0.5	BN	10201	IV	—
6	0.5	WH / BN	2764	II	—	Window Switch Left Front Down Signal	6	0.5	WH / BN	2764	IV	—

X505 Front Side Door Door Wiring Harness - Left to Front Side Door Door Lock Door Wiring Harness - Left (cont'd)

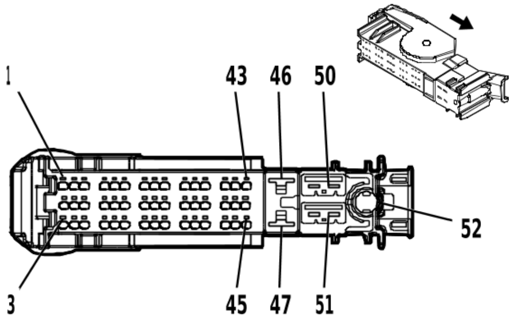
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
7	—	—	—	—	—	Not Occupied	7	—	—	—	—	—
8	0.5	GN	2766	II	—	Power Window Switch Left Front Express Signal	8	0.5	GN	2766	IV	—
9	0.5	WH / BK	10202	II	—	Left Front Mirror Motor Retract Control	9	0.5	WH / BK	10202	IV	—
10 - 11	—	—	—	—	—	Not Occupied	10 - 11	—	—	—	—	—
12	0.5	GY / WH	2785	II	—	Left Front Mirror Motor Fold Out Control	12	0.5	GY / WH	2785	IV	—
13	0.5	WH / GN	2786	I	—	Left Front Mirror Motor Fold In Control	13	0.5	WH / GN	2786	III	—
14	0.5	GY / BN	2787	I	—	Left Front Mirror Position Sensor Up [+] Down [-] Signal	14	0.5	GY / BN	2787	III	—
15	0.5	VT / BU	2788	I	—	Left Front Mirror Motor Up [+] Down [-] Control	15	0.5	VT / BU	2788	III	—
16	0.5	YE / BN	2789	I	—	Left Front Mirror Motor Common Control	16	0.5	YE / BN	2789	III	—
17	0.5	BN / BK	2790	I	—	Left Front Mirror Motor Right [+] Left [-] Control	17	0.5	BN / BK	2790	III	—
18	0.5	VT / RD	2791	I	—	Left Front Mirror Position Sensor High Reference	18	0.5	VT / RD	2791	III	—
19	0.5	WH / YE	2792	I	—	Left Front Mirror Position Sensor Left [-] Right [+] Signal	19	0.5	WH / YE	2792	III	—
20	0.5	WH	606	I	—	Left Outside Rearview Mirror Heater Control	20	0.5	WH	606	III	—
21	0.5	GN / YE	6134	I	—	Body Control Module LIN Bus 3	21	0.5	GN / YE	6134	III	—
22	0.5	BU / GN	614	I	—	Seat Memory Switch Set Signal	22	0.5	BU / GN	614	III	—

X505 Front Side Door Door Wiring Harness - Left to Front Side Door Door Lock Door Wiring Harness - Left (cont'd)

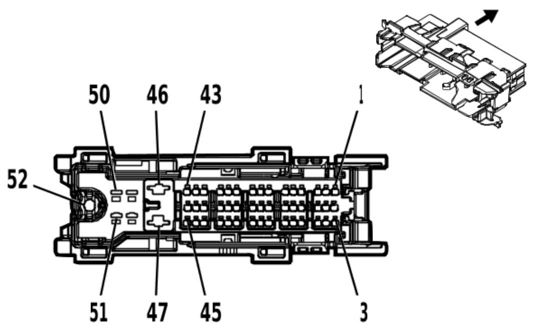
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
23	0.5	WH	615	I	—	Seat Memory Switch Signal 1	23	0.5	WH	615	III	—
24	0.5	BK / BN	673	I	—	Left Outside Rearview Mirror Position Sensor Low Reference	24	0.5	BK / BN	673	III	—
25	—	—	—	—	—	LED Backlight Dimming Control 1	25	0.5	YE	6817	III	—
26	—	—	—	—	—	Not Occupied	26	—	—	—	—	—
27	0.5	BK	1550	I	—	Ground	27	0.5	BK	1550	III	—
28	0.5	BK / WH	1551	I	—	Signal Ground	28	0.5	BK / WH	1551	III	—
29	0.5	WH / VT	4258	I	—	Left Front Door Lock Status Signal	29	0.5	WH / VT	4258	III	—
30 - 50	—	—	—	—	—	Not Occupied	30 - 50	—	—	—	—	—

X600 Front Side Door Door Wiring Harness - Right to Body Wiring Harness

FIGURESIO=6217847 Owner=Owner, Schematics LMD=26-Jan-2023



4992530



4993484

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 35077349
Service Connector: Service by Harness - See Part Catalog
Description: 52-Way F 1.2, 2.8, 6.3, Coaxial Series(BK)

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35190453
Service Connector: 13527236
Description: 52-Way M 1.2, 2.8, 6.3, Coaxial Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-42 (RD)	No Tool Required
III	Not required	No Tool Required	No Tool Required
IV	19301536	J-35616-43 (RD)	J-38125-11A
V	84616651	J-35616-13 (L-BU)	J-38125-215A
VI	Service by Cable	No Tool Required	J-38125-12A

X600 Front Side Door Door Wiring Harness - Right to Body Wiring Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1 - 4	—	—	—	—	—	Not Occupied	1 - 4	—	—	—	—	—
5	0.75	YE	200	I	—	Right Front Speaker 1 [+] Control	5	0.75	YE	200	V	—
6	0.75	YE / BK	117	I	—	Right Front Speaker [-] Control 1	6	0.75	YE / BK	117	V	—
7	—	—	—	—	—	Not Occupied	7	—	—	—	—	—
8	0.5	BN / OG	2134	I	—	Right Front Side Impact Sensor Signal	8	0.5	BN / OG	2134	V	—
9	0.5	BK / OG	6629	I	—	Right Front Side Impact Sensor Low Reference	9	0.5	BK / OG	6629	V	—

X600 Front Side Door Door Wiring Harness - Right to Body Wiring Harness (cont'd)

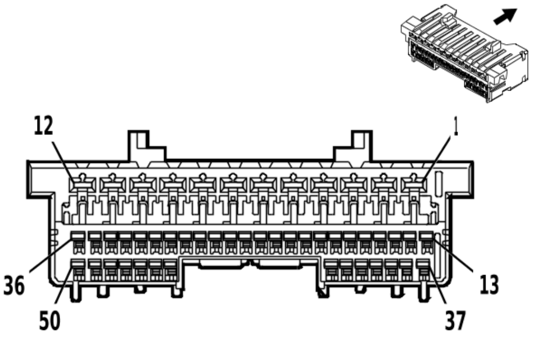
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
10	0.5	GN / YE	4303	I	—	Passive Entry Right Front Door Antenna Signal High	10	0.35	GN / YE	4303	V	—
11	0.5	GN / BK	4304	I	—	Passive Entry Right Front Door Antenna Signal Low	11	0.35	GN / BK	4304	V	—
12	—	—	—	—	—	Not Occupied	12	—	—	—	—	—
13	0.5	GN / GY	2115	I	—	Right Turn Signal Lamp Control 2	13	0.35	GN / GY	2115	V	—
14	0.5	GY / VT	2676	I	—	Right Front Door Exterior Switch Unlock Signal	14	0.35	GY / VT	2676	V	—
15	0.75	GY / BK	2680	I	—	Lock Actuators Unlock Control 2	15	0.75	GY / BK	2680	V	—
16	0.75	YE / GN	2682	I	—	Right Front Door Lock Actuator Lock Control	16	0.75	YE / GN	2682	V	—
17 - 19	—	—	—	—	—	Not Occupied	17 - 19	—	—	—	—	—
20	0.5	WH / GN	5966	I	—	Approach Lamp Control	20	0.5	WH / GN	5966	V	—
21	—	—	—	—	—	Not Occupied	21	—	—	—	—	—
22	0.5	BK / GY	626	I	—	Engine Control Vehicle Sensors Low Reference 1	22	0.5	BK / GY	626	V	—
23	0.5	BU / GY	636	I	—	Ambient Air Temperature Sensor Signal	23	0.5	BU / GY	636	V	—
24	—	—	—	—	—	LED Backlight Dimming Control 1	24	0.5	YE	6817	V	—
25	—	—	—	—	—	Not Occupied	25	—	—	—	—	—
26	0.5	BU / YE	7761	I	—	Backup Illumination Lamp Control	26	0.35	BU / YE	7761	V	—
27	—	—	—	—	—	Not Occupied	27	—	—	—	—	—
28	0.5	BK / WH	1451	I	—	Signal Ground	28	0.75	BK / WH	1451	V	—
29	0.5	GN / YE	6134	I	—	Body Control Module LIN Bus 3	29	0.35	GN / YE	6134	V	—
30	0.35	YE / WH	2934	I	—	Task Lamp Control Right	30	0.35	YE / WH	2934	V	—

X600 Front Side Door Door Wiring Harness - Right to Body Wiring Harness (cont'd)

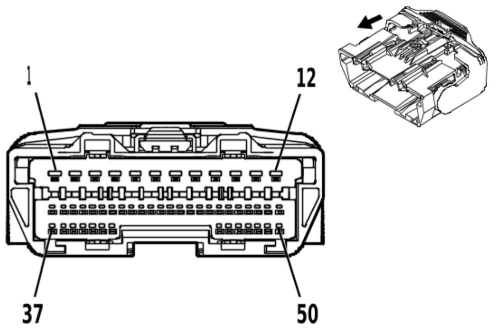
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
31	0.5	BN / GN	4246	I	—	Identification Lamp Control	31	0.5	BN / GN	4246	V	—
32 - 43	—	—	—	—	—	Not Occupied	32 - 43	—	—	—	—	—
44	0.5	BK / YE	1691	I	—	Automatic Day/Night Mirror Low Reference	44	0.35	BK / YE	1691	V	—
45	0.5	YE / WH	1690	I	—	Mirror Dimming Signal	45	0.35	YE / WH	1690	V	—
46	2.5	RD / BN	4240	II	—	Battery Positive Voltage	46	2.5	RD / BN	4240	IV	—
47	2.5	BK	1350	II	—	Ground	47	2.5	BK	1350	IV	—
48 - 51	—	—	—	—	—	Not Occupied	48 - 51	—	—	—	—	—
52	0	BK	4724	III	—	Right Side-view Camera LVDS (Low Voltage Differential Signaling) Coaxial Signal	52	0	—	4724	VI	—

X605 Front Side Door Door Wiring Harness - Right to Front Side Door Door Lock Door Wiring Harness - Right

FIGURESIO=6217848 Owner=Owner, Schematics LMD=26-Jan-2023



4997556



5022037

Connector Part Information

Harness Type: Front Side Door Door Wiring Harness - Right
OEM Connector: 35283943
Service Connector: Service by Harness - See Part Catalog
Description: 50-Way F 1.2, 2.8 OCS Series(BK)

Connector Part Information

Harness Type: Front Side Door Door Lock Door Wiring Harness - Right
OEM Connector: 33390111
Service Connector: Service by Harness - See Part Catalog
Description: 50-Way M 1.2, 2.8 OCS Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	Not required	J-35616-13 (L-BU)	No Tool Required
IV	Not required	J-35616-5 (PU)	No Tool Required

X605 Front Side Door Door Wiring Harness - Right to Front Side Door Door Lock Door Wiring Harness - Right

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD / BN	4240	II	—	Battery Positive Voltage	1	2.5	RD / BN	4240	IV	—
2	0.5	GN	1184	II	—	Window Switch Right Front Up Signal	2	0.5	GN	1184	IV	—
3	0.5	GY	1761	II	—	Right Side Object Detection LED Control	3	0.35	GY	1761	IV	—
4	—	—	—	—	—	Not Occupied	4	—	—	—	—	—
5	0.5	VT / GY	2765	II	—	Window Switch Right Front Express Signal	5	0.5	VT / GY	2765	IV	—
6 - 7	—	—	—	—	—	Not Occupied	6 - 7	—	—	—	—	—

X605 Front Side Door Door Wiring Harness - Right to Front Side Door Door Lock Door Wiring Harness - Right (cont'd)

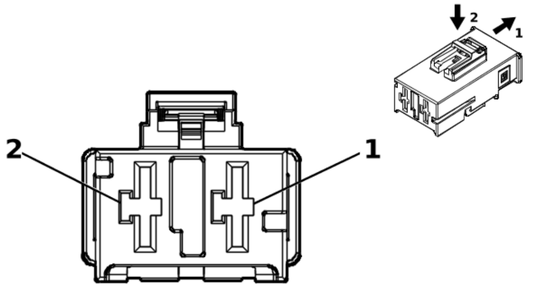
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
8	0.5	YE / WH	2793	II	—	Right Front Mirror Motor Fold Out Control	8	0.5	YE / WH	2793	IV	—
9	0.5	BU / GY	2794	II	—	Right Front Mirror Motor Fold In Control	9	0.5	BU / GY	2794	IV	—
10	2.5	BK	1350	II	—	Ground	10	2.5	BK	1350	IV	—
11	2	GN / GY	666	II	—	Right Front Window Motor Up Control	11	2.5	GN / GY	666	IV	—
12	2	YE / BU	667	II	—	Right Front Window Motor Down Control	12	2.5	YE / BU	667	IV	—
13	0.5	GN / BK	2798	I	—	Right Front Mirror Motor Right [+] Left [-] Control	13	0.5	GN / BK	2798	III	—
14	0.5	YE / RD	2799	I	—	Right Front Mirror Position Sensor High Reference	14	0.5	YE / RD	2799	III	—
15	0.5	VT / WH	2800	I	—	Right Front Mirror Position Sensor Left [-] Right [+] Signal	15	0.5	VT / WH	2800	III	—
16	0.5	BN	5295	I	—	Window Switch Right Front Down Signal	16	0.5	BN	5295	III	—
17	0.5	BN / VT	607	I	—	Right Outside Rearview Mirror Heater Control	17	0.5	BN / VT	607	III	—
18	0.5	GN / YE	6134	I	—	Body Control Module LIN Bus 3	18	0.5	GN / YE	6134	III	—
19	0.5	BN / GN	10203	I	—	Right Front Mirror Motor Extend Control	19	0.5	BN / GN	10203	III	—
20	0.5	VT	10204	I	—	Right Front Mirror Motor Retract Control	20	0.5	VT	10204	III	—
21	0.5	BK / GN	675	I	—	Right Outside Rearview Mirror Position Sensor Low Reference	21	0.5	BK / GN	675	III	—
22	—	—	—	—	—	LED Backlight Dimming Control 1	22	0.5	YE	6817	III	—

X605 Front Side Door Door Wiring Harness - Right to Front Side Door Door Lock Door Wiring Harness - Right (cont'd)

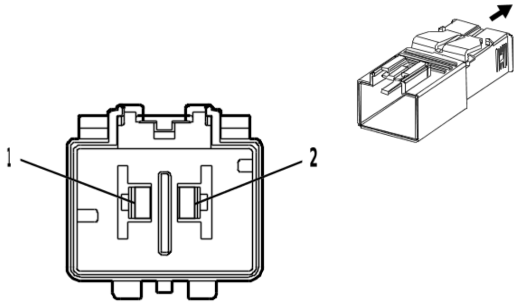
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
23 - 46	—	—	—	—	—	Not Occupied	23 - 46	—	—	—	—	—
47	0.5	GY	746	I	—	Right Front Door Ajar Switch Signal	47	0.5	GY	746	III	—
48	0.5	BU / YE	2795	I	—	Right Front Mirror Position Sensor Up [+] Down [-] Signal	48	0.5	BU / YE	2795	III	—
49	0.5	YE / VT	2796	I	—	Right Front Mirror Motor Up [+] Down [-] Control	49	0.5	YE / VT	2796	III	—
50	0.5	WH	2797	I	—	Right Front Mirror Motor Common Control	50	0.5	WH	2797	III	—

X630 Auxiliary Fuse Block Wiring Harness to Auxiliary Fuse Block Wiring Harness

FIGURESIO=6217849 Owner=Owner, Schematics LMD=26-Jan-2023



5187955



4891120

Connector Part Information

Harness Type: Auxiliary Fuse Block Wiring Harness
OEM Connector: 35134698
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 9.5 MCON-LL Series(BK)

Connector Part Information

Harness Type: Auxiliary Fuse Block Wiring Harness
OEM Connector: 35134697
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 9.5 MCON-LL Series(BK)

Terminal Part Information

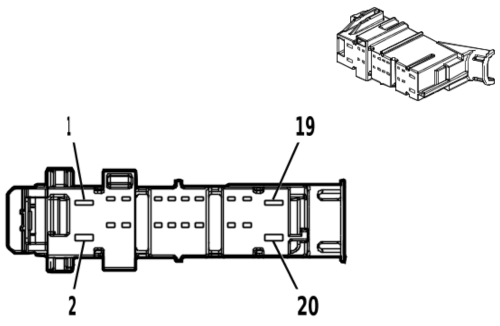
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-22 (RD)	No Tool Required
II	Not required	J-35616-21 (RD)	No Tool Required

X630 Auxiliary Fuse Block Wiring Harness to Auxiliary Fuse Block Wiring Harness

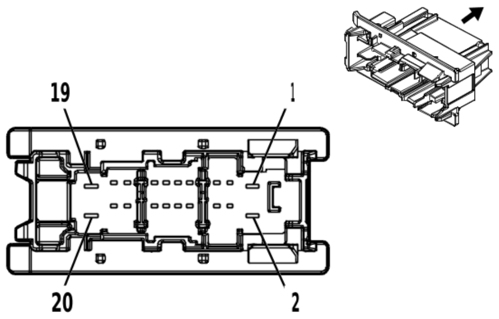
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	10	RD / VT	542	I	—	Battery Positive Voltage	1	10	RD / VT	542	II	—
2	—	—	—	—	—	Not Occupied	2	—	—	—	—	—

X700 Rear Side Door Door Wiring Harness - Left to Body Wiring Harness

FIGURESIO=6217850 Owner=Owner, Schematics LMD=26-Jan-2023



4650257



4663657

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Left
OEM Connector: 33303652
Service Connector: Service by Harness - See Part Catalog
Description: 20-Way F 1.2 MCON, 2.8 MCP Series(BK)

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35215020
Service Connector: 13527239
Description: 20-Way M 1.2 MCON, 2.8 MCP Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-35 (VT)	No Tool Required
III	13586064	J-35616-5 (PU)	J-38125-36
IV	84616651	J-35616-13 (L-BU)	J-38125-215A
V	84726946	J-35616-13 (L-BU)	J-38125-215A

X700 Rear Side Door Door Wiring Harness - Left to Body Wiring Harness

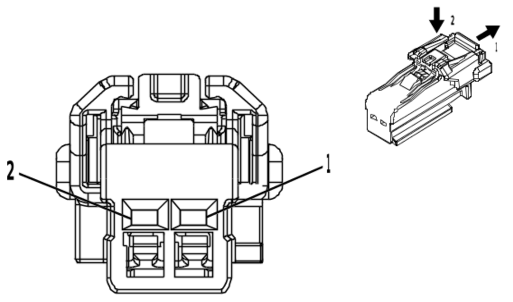
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD / BU	3240	II	—	Battery Positive Voltage	1	2.5	RD / BU	3240	III	—
2 - 5	—	—	—	—	—	Not Occupied	2 - 5	—	—	—	—	—
6	0.75	WH	2679	I	—	Lock Actuators Unlock Control 1	6	0.75	WH	2679	IV	—
7	0.75	BU / YE	1091	I	—	Left Rear Door Lock Actuator Lock Control	7	0.75	BU / YE	1091	IV	—
8	—	—	—	—	—	Not Occupied	8	—	—	—	—	—
9	0.5	BK / OG	6623	I	—	Left Rear Side Impact Sensor Low Reference	9	0.5	BK / OG	6623	IV	—
10	—	—	—	—	—	Not Occupied	10	—	—	—	—	—

X700 Rear Side Door Door Wiring Harness - Left to Body Wiring Harness (cont'd)

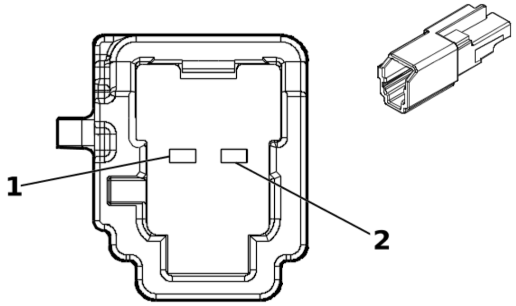
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
11	0.5	OG / BU	6622	I	—	Left Rear Side Impact Sensor Signal	11	0.5	OG / BU	6622	IV	—
12	0.5	GN / GY	6135	I	—	Body Control Module LIN Bus 4	12	0.35	GN / GY	6135	IV	—
13 - 16	—	—	—	—	—	Not Occupied	13 - 16	—	—	—	—	—
17	0.75	GN	199	I	—	Left Rear Speaker [+] Control	17	1.5 0.75	GN GN	199 199	V IV	UQA UQF
18	0.75	GN / BK	116	I	—	Left Rear Speaker [-] Control	18	1.5 0.75	GN / BK GN / BK	116 116	V IV	UQA UQF
19	—	—	—	—	—	Not Occupied	19	—	—	—	—	—
20	2.5	BK	1550	II	—	Ground	20	2.5	BK	1550	III	—

X701 Rear Side Door Door Wiring Harness - Left to Rear Side Door Wiring Harness

FIGURESIO=6217851 Owner=Owner, Schematics LMD=26-Jan-2023



4373379



5360948

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Left
OEM Connector: 35311601
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(GY)

Connector Part Information

Harness Type: Rear Side Door Wiring Harness
OEM Connector: 35264701
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series(GY)

Terminal Part Information

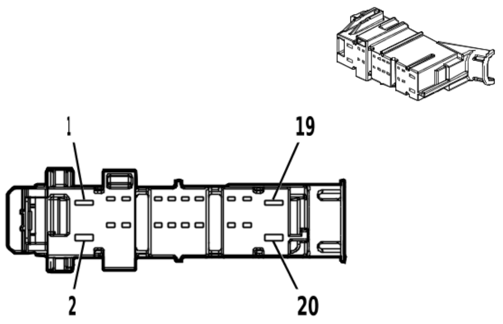
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-13 (L-BU)	No Tool Required

X701 Rear Side Door Door Wiring Harness - Left to Rear Side Door Wiring Harness

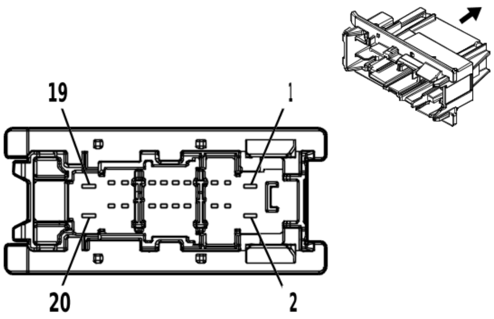
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	GN / BK	116	I	—	Left Rear Speaker [-] Control	1	0.75	GN / BK	116	II	—
2	0.75	GN	199	I	—	Left Rear Speaker [+] Control	2	0.75	GN	199	II	—

X800 Rear Side Door Door Wiring Harness - Right to Body Wiring Harness

FIGURESIO=6217852 Owner=Owner, Schematics LMD=26-Jan-2023



4650257



4663657

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Right
OEM Connector: 33303652
Service Connector: Service by Harness - See Part Catalog
Description: 20-Way F 1.2 MCON, 2.8 MCP Series(BK)

Connector Part Information

Harness Type: Body Wiring Harness
OEM Connector: 35215020
Service Connector: 13527239
Description: 20-Way M 1.2 MCON, 2.8 MCP Series(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-35 (VT)	No Tool Required
III	13586064	J-35616-5 (PU)	J-38125-36
IV	84616651	J-35616-13 (L-BU)	J-38125-215A
V	84726946	J-35616-13 (L-BU)	J-38125-215A

X800 Rear Side Door Door Wiring Harness - Right to Body Wiring Harness

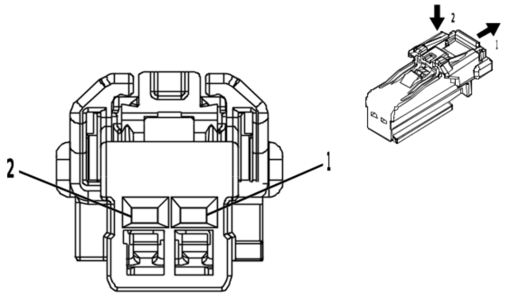
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	YE / BK	4840	II	—	Battery Positive Voltage	1	2.5	RD / GY	4840	III	—
2 - 5	—	—	—	—	—	Not Occupied	2 - 5	—	—	—	—	—
6	0.75	GY / BK	2680	I	—	Lock Actuators Unlock Control 2	6	0.75	GY / BK	2680	IV	—
7	0.75	VT / WH	1094	I	—	Right Rear Door Lock Actuator Lock Control	7	0.75	VT / WH	1094	IV	—
8	—	—	—	—	—	Not Occupied	8	—	—	—	—	—
9	0.5	BK / OG	6627	I	—	Right Rear Side Impact Sensor Low Reference	9	0.5	BK / OG	6627	IV	—
10	—	—	—	—	—	Not Occupied	10	—	—	—	—	—

X800 Rear Side Door Door Wiring Harness - Right to Body Wiring Harness (cont'd)

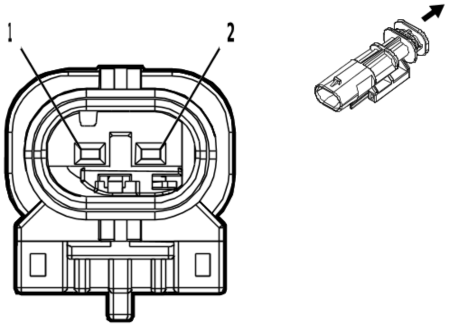
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
11	0.5	OG / WH	6626	I	—	Right Rear Side Impact Sensor Signal	11	0.5	OG / WH	6626	IV	—
12	0.5	GN / GY	6135	I	—	Body Control Module LIN Bus 4	12	0.35	GN / GY	6135	IV	—
13 - 16	—	—	—	—	—	Not Occupied	13 - 16	—	—	—	—	—
17	0.75	WH	46	I	—	Right Rear Speaker [+] Control	17	1.5 0.75	WH WH	46 46	V IV	UQA UQF
18	0.75	BU / BK	115	I	—	Right Rear Speaker [-] Control	18	1.5 0.75	BU / BK BU / BK	115 115	V IV	UQA UQF
19	—	—	—	—	—	Not Occupied	19	—	—	—	—	—
20	2.5	BK	1350	II	—	Ground	20	2.5	BK	1350	III	—

X801 Rear Side Door Door Wiring Harness - Right to Rear Side Door Wiring Harness

FIGURESIO=6217853 Owner=Owner, Schematics LMD=26-Jan-2023



4373379



4569729

Connector Part Information

Harness Type: Rear Side Door Door Wiring Harness - Right
OEM Connector: 35311601
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON Series(GY)

Connector Part Information

Harness Type: Rear Side Door Wiring Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M (GY)

Terminal Part Information

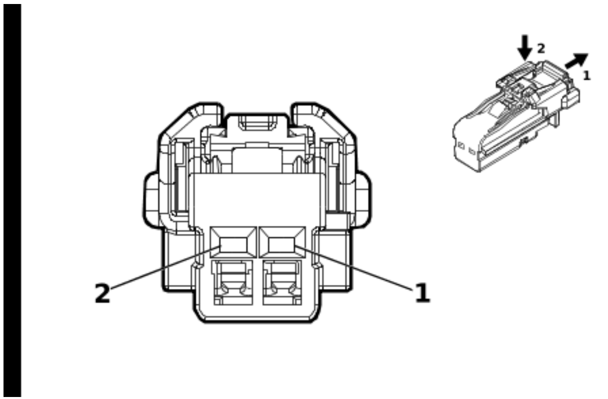
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	No Tool Required	No Tool Required

X801 Rear Side Door Door Wiring Harness - Right to Rear Side Door Wiring Harness

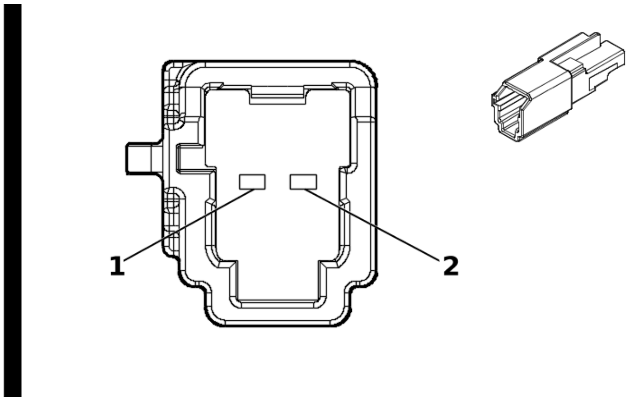
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BU / BK	115	I	—	Right Rear Speaker [-] Control	1	0.75	BU / BK	115	II	—
2	0.75	WH	46	I	—	Right Rear Speaker [+] Control	2	0.75	WH	46	II	—

X850 Roof Wiring Harness to Instrument Panel Wiring Harness

FIGURESIO=6217854 Owner=Owner, Schematics LMD=26-Jan-2023



4115691



5355341

Connector Part Information

Harness Type: Roof Wiring Harness
OEM Connector: 35311666
Service Connector: 87816612
Description: 2-Way F 1.2 MCON Series(BK)

Connector Part Information

Harness Type: Instrument Panel Wiring Harness
OEM Connector: 35258943
Service Connector: 84815531
Description: 2-Way M 1.2 MCON Series(BK)

Terminal Part Information

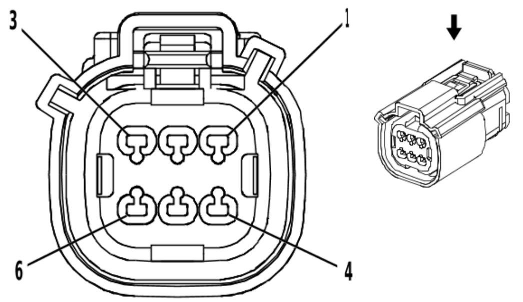
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-13 (L-BU)	No Tool Required

X850 Roof Wiring Harness to Instrument Panel Wiring Harness

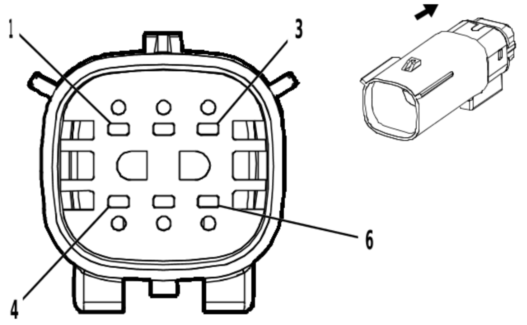
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	BK	1050	I	—	Ground	1	0.5	BK	1050	II	—
2	0.5	BN / GN	4246	I	—	Identification Lamp Control	2	0.5	BN / GN	4246	II	—

X910A Tail Lamp Wiring Harness - Left to Chassis Wiring Harness - Chassis Cab

FIGURESIO=6258117 Owner=Owner, Schematics LMD=26-Jan-2023



3225042



1986159

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13503523
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 1.5 MX Series, Sealed(GY)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35073434
Service Connector: 19367742
Description: 6-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

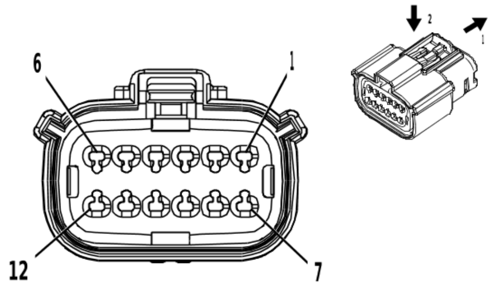
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	J-35616-3 (GY)	No Tool Required

X910A Tail Lamp Wiring Harness - Left to Chassis Wiring Harness - Chassis Cab

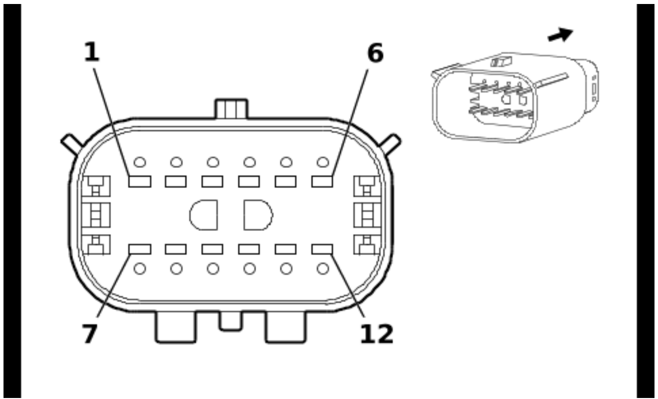
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BN / BU	6993	I	—	Left Rear Park Lamp Control	1	0.75	BN / BU	6993	II	—
2 - 3	—	—	—	—	—	Not Occupied	2 - 3	—	—	—	—	—
4	0.5	GN / WH	24	I	—	Backup Lamp Control	4	0.5	GN / WH	24	II	—
5	0.75	BU / WH	1334	I	—	Left Rear Turn Signal Lamp Control 2	5	0.75	BU / WH	1334	II	—
6	1	BK / WH	1951	I	—	Signal Ground	6	1	BK / WH	1951	II	—

X910A Tail Lamp Wiring Harness - Left to Chassis Wiring Harness - without Chassis Cab

FIGURESIO=6258115 Owner=Owner, Schematics LMD=26-Jan-2023



2871860



1825167

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13503526
Service Connector: Service by Harness - See Part Catalog
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33369138
Service Connector: 19369242
Description: 12-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	19119842	J-35616-3 (GY)	J-38125-217

X910A Tail Lamp Wiring Harness - Left to Chassis Wiring Harness - without Chassis Cab

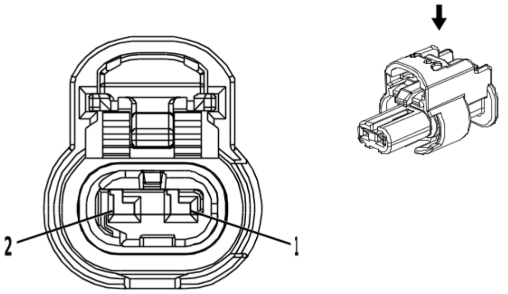
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	1	BK / WH	1951	I	—	Signal Ground	1	1	BK / WH	1951	II	—
2	0.5	RD / WH	640	I	—	Battery Positive Voltage	2	0.5	RD / WH	640	II	—
3	0.75	GY / YE	7542	I	—	Left Rear Stop Lamp Control	3	0.75	GY / YE	7542	II	—
4	0.75	BN / BU	6993	I	—	Left Rear Park Lamp Control	4	0.75	BN / BU	6993	II	—
5	0.75	BU / WH	1334	I	—	Left Rear Turn Signal Lamp Control 2	5	0.75	BU / WH	1334	II	—
6	0.75	WH / VT	6567	I	—	Rear Turn Signal Lamp Feedback Signal	6	0.75	WH / VT	6567	II	—
7	0.5	GN / WH	24	I	—	Backup Lamp Control	7	0.5	GN / WH	24	II	—
8	0.5	YE / GN	2024	I	—	Animation Lighting Control	8	0.5	YE / GN	2024	II	—

X910A Tail Lamp Wiring Harness - Left to Chassis Wiring Harness - without Chassis Cab (cont'd)

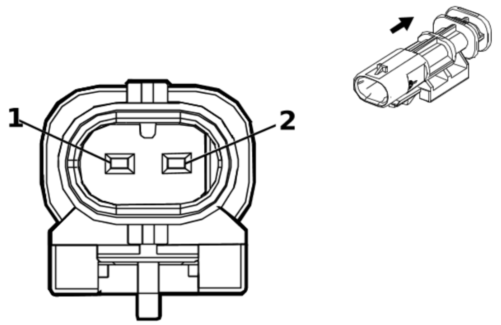
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
9	0.5	GY / BU	7762	I	—	Cargo Lamp Control	9	0.5	GY / BU	7762	II	—
10	0.75	BU / VT	1335	I	—	Right Rear Turn Signal Lamp Control 2	10	0.75	BU / VT	1335	II	—
11	0.5	BN / GN	4246	I	—	Identification Lamp Control	11	0.5	BN / GN	4246	II	—
12	—	—	—	—	—	Not Occupied	12	—	—	—	—	—

X910C Tail Lamp Wiring Harness - Left to Left Side Marker Lamp Harness (DZW)

FIGURESIO=6258119 Owner=Owner, Schematics LMD=26-Jan-2023



4335931



5200722

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512366
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON-CB Series, Sealed(BK)

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13591338
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series, Sealed(BK)

Terminal Part Information

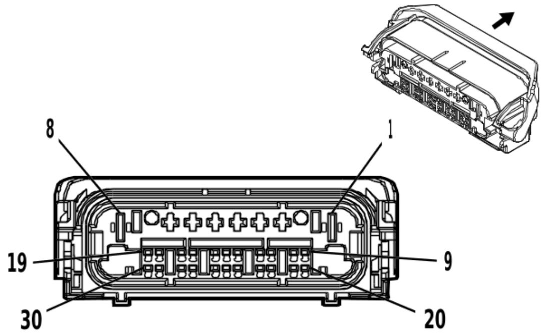
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	No Tool Required	No Tool Required

X910C Tail Lamp Wiring Harness - Left to Left Side Marker Lamp Harness (DZW)

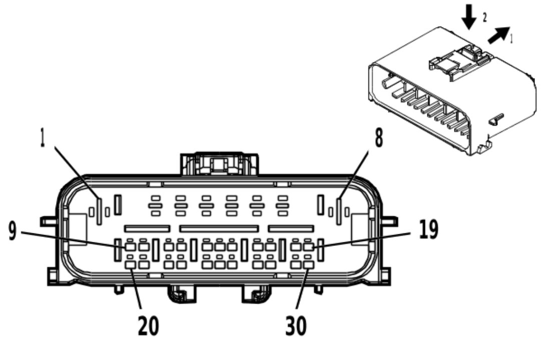
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	BK	1951	I	—	Signal Ground	1	—	BK	1951	II	—
2	—	BN / GN	4246	I	—	Identification Lamp Control	2	—	BN / GN	4246	II	—

X918 Endgate Wiring Harness to Chassis Wiring Harness

FIGURESIO=6217857 Owner=Owner, Schematics
LMD=26-Jan-2023



4650150



4817393

Connector Part Information

Harness Type: Endgate Wiring Harness
OEM Connector: 35573111
Service Connector: Service by Harness - See Part Catalog
Description: 30-Way F 1.2 MCON, 2.8, 6.3 MCP Series, Sealed(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35547577
Service Connector: 19371177
Description: 30-Way M 1.2 MCON, 2.8, 6.3 MCP Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-12 (L-BU)	No Tool Required
II	Not required	J-35616-4A (PU)	No Tool Required
III	13578827	J-35616-5 (PU)	J-38125-36
IV	19330704	J-35616-13 (L-BU)	J-38125-215A

X918 Endgate Wiring Harness to Chassis Wiring Harness

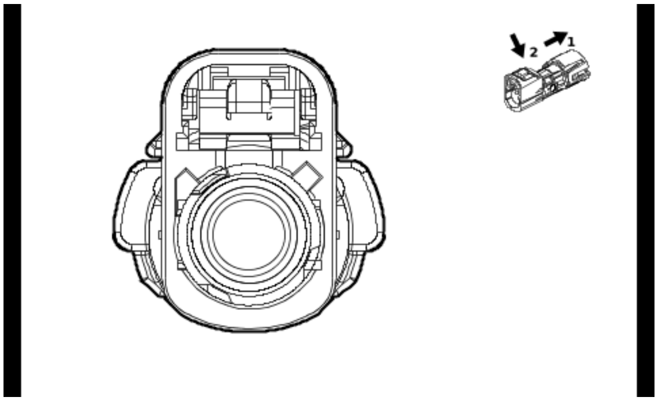
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	—	—	—	—	Not Occupied	1	—	—	—	—	—
2	2.5	RD / VT	4442	II	—	Primary Fused Battery Positive Voltage	2	2.5	RD / VT	4442	III	—
3	2.5	BK	1850	II	—	Ground	3	2.5	BK	1850	III	—
4	1	VT	7725	II	—	Minor Endgate Motor Control	4	1	VT	7725	III	—
5	1	YE / BK	7730	II	—	Major Endgate Motor Low Reference	5	1	YE / BK	7730	III	—
6	1	GN	1299	II	—	Major Endgate Motor Control	6	1	GN	1299	III	—
7 - 8	—	—	—	—	—	Not Occupied	7 - 8	—	—	—	—	—
9	0.5	WH / VT	1430	I	—	Exterior Courtesy Lamp Control	9	0.5	WH / VT	1430	IV	—

X918 Endgate Wiring Harness to Chassis Wiring Harness (cont'd)

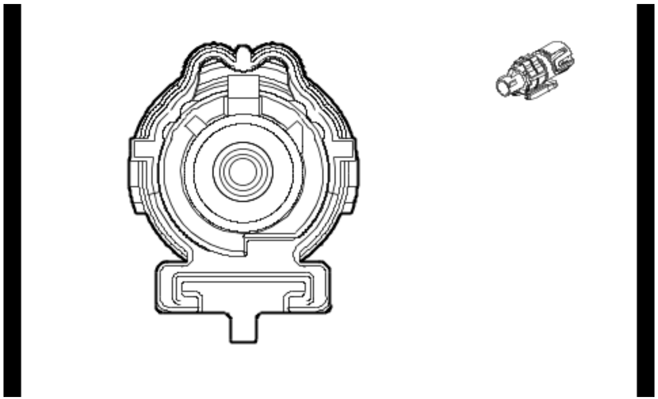
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
10	0.5	YE	7294	I	—	Minor Endgate Release Switch Discrete Signal Exterior	10	0.5	YE	7294	IV	—
11	0.75	YE / BU	7295	I	—	Left Minor Endgate Ajar Signal	11	0.75	YE / BU	7295	IV	—
12 - 17	—	—	—	—	—	Not Occupied	12 - 17	—	—	—	—	—
18	0.5	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	18	0.5	BU / VT	4101	IV	—
19	0.5	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	19	0.5	WH	4100	IV	—
20	0.5	YE	1144	I	—	Endgate Release Switch Discrete Signal Exterior	20	0.5	YE	1144	IV	—
21	0.5	GY	7292	I	—	Major Endgate Release Switch Signal Exterior	21	0.5	GY	7292	IV	—
22	0.5	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	22	—	—	—	—	—
23	0.5	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	23	—	—	—	—	—
24 - 28	—	—	—	—	—	Not Occupied	24 - 28	—	—	—	—	—
29	0.5	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	29	0.5	WH	4100	IV	—
30	0.5	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	30	0.5	BU / VT	4101	IV	—

X919 Endgate Wiring Harness to Chassis Wiring Harness

FIGURESIO=6217858 Owner=Owner, Schematics
LMD=26-Jan-2023



5810829



5757466

Connector Part Information

Harness Type: Endgate Wiring Harness COAX
OEM Connector: 35187033
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way F Coax Type(WH)

Connector Part Information

Harness Type: Chassis Wiring Harness COAX
OEM Connector: 33338240
Service Connector: Service by Cable Assembly — See Part Catalog
Description: 1-Way M Coax Type, Sealed(WH)

Terminal Part Information

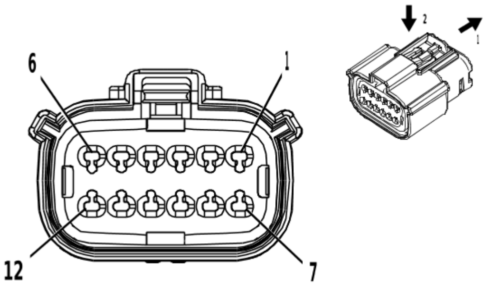
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X919 Endgate Wiring Harness to Chassis Wiring Harness

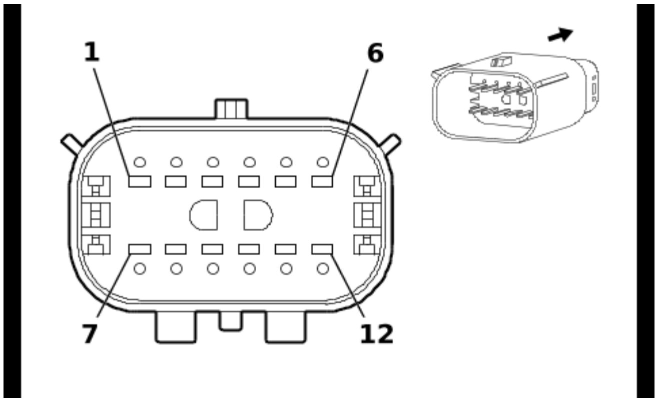
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	Coax Cable	—	I	—	Rear Vision Camera Coaxial Video Signal	—	—	Coax Cable	—	I	—

X920A Tail Lamp Wiring Harness - Right to Chassis Wiring Harness - without Chassis Cab

FIGURESIO=6258122 Owner=Owner, Schematics LMD=26-Jan-2023



2871860



1825167

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13503526
Service Connector: Service by Harness - See Part Catalog
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33369138
Service Connector: 19369242
Description: 12-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	19119842	J-35616-3 (GY)	J-38125-217

X920A Tail Lamp Wiring Harness - Right to Chassis Wiring Harness - without Chassis Cab

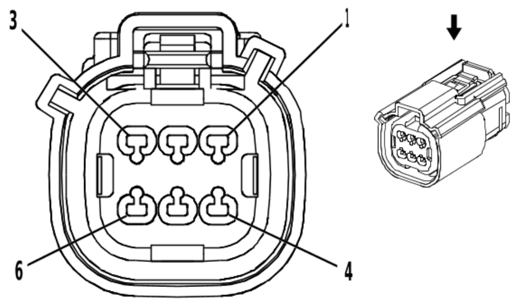
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	1	BK	1850	I	—	Ground	1	1	BK	1850	II	—
2	0.5	RD / WH	6440	I	—	Battery Positive Voltage	2	0.5	RD / WH	6440	II	—
3	0.75	WH / YE	7541	I	—	Right Rear Stop Lamp Control	3	0.75	WH / YE	7541	II	—
4	0.75	BN / GY	6995	I	—	Right Rear Park Lamp Control	4	0.75	BN / GY	6995	II	—
5	0.75	BU / VT	1335	I	—	Right Rear Turn Signal Lamp Control 2	5	0.75	BU / VT	1335	II	—
6	0.75	WH / BK	7544	I	—	Right Rear Turn Signal Lamp Feedback Signal	6	0.75	WH / BK	7544	II	—
7	0.5	GN / WH	24	I	—	Backup Lamp Control	7	0.5	GN / WH	24	II	—
8	0.5	YE / GN	2024	I	—	Animation Lighting Control	8	0.5	YE / GN	2024	II	—
9	0.5	GY / BU	7762	I	—	Cargo Lamp Control	9	0.5	GY / BU	7762	II	—

X920A Tail Lamp Wiring Harness - Right to Chassis Wiring Harness - without Chassis Cab (cont'd)

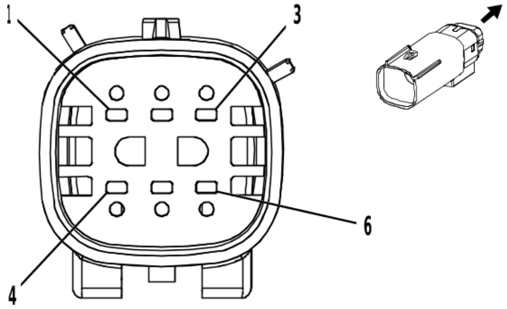
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
10	0.75	BU / WH	1334	I	—	Left Rear Turn Signal Lamp Control 2	10	0.75	BU / WH	1334	II	—
11	0.5	BN / GN	4246	I	—	Identification Lamp Control	11	0.5	BN / GN	4246	II	—
12	—	—	—	—	—	Not Occupied	12	—	—	—	—	—

X920A Tail Lamp Wiring Harness - Right to Chassis Wiring Harness - Chassis Cab

FIGURESIO=6258124 Owner=Owner, Schematics LMD=26-Jan-2023



3225042



3225221

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13503523
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way F 1.5 MX Series, Sealed(GY)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35073435
Service Connector: 19370461
Description: 6-Way M 1.5 MX Series, Sealed(GY)

Terminal Part Information

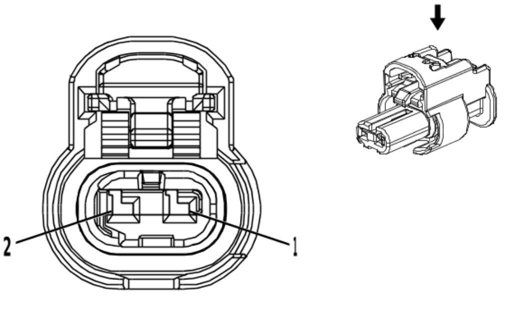
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	J-35616-3 (GY)	No Tool Required

X920A Tail Lamp Wiring Harness - Right to Chassis Wiring Harness - Chassis Cab

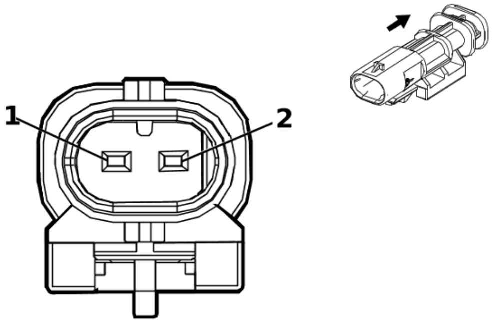
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BN / GY	6995	I	—	Right Rear Park Lamp Control	1	0.75	BN / GY	6995	II	—
2 - 3	—	—	—	—	—	Not Occupied	2 - 3	—	—	—	—	—
4	0.5	GN / WH	24	I	—	Backup Lamp Control	4	0.5	GN / WH	24	II	—
5	0.75	BU / VT	1335	I	—	Right Rear Turn Signal Lamp Control 2	5	0.75	BU / VT	1335	II	—
6	1	BK	1850	I	—	Ground	6	1	BK	1850	II	—

X920C Tail Lamp Wiring Harness - Right to Right Side Marker Lamp Harness (DZW)

FIGURESIO=6258126 Owner=Owner, Schematics LMD=26-Jan-2023



4335931



5200722

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13512366
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way F 1.2 MCON-CB Series, Sealed(BK)

Connector Part Information

Harness Type: Sunroof Jumper Harness
OEM Connector: 13591338
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 1.2 MCON Series, Sealed(BK)

Terminal Part Information

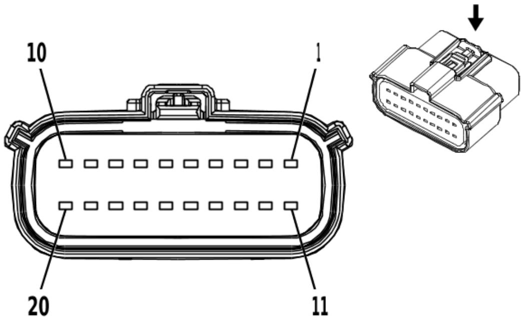
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required
II	Not required	No Tool Required	No Tool Required

X920C Tail Lamp Wiring Harness - Right to Right Side Marker Lamp Harness (DZW)

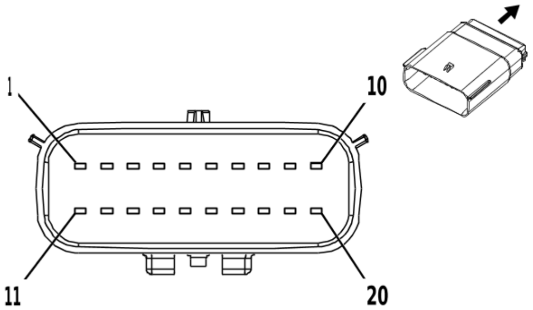
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	—	BK	1850	I	—	Ground	1	—	BK	1850	II	—
2	—	BN / GN	4246	I	—	Identification Lamp Control	2	—	BN / GN	4246	II	—

X950 Rear Object Alarm Sensor Wiring Harness to Chassis Wiring Harness - Chassis Cab

FIGURESIO=6217860 Owner=Owner, Schematics LMD=27-Jan-2023



2871898



2871861

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 13504367
Service Connector: Service by Harness - See Part Catalog
Description: 20-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 35212395
Service Connector: 19351705
Description: 20-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

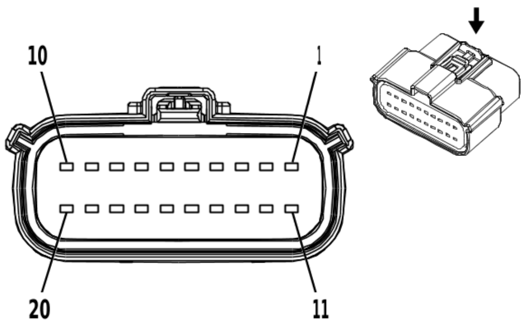
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	86800300	J-35616-3 (GY)	J-38125-217

X950 Rear Object Alarm Sensor Wiring Harness to Chassis Wiring Harness - Chassis Cab

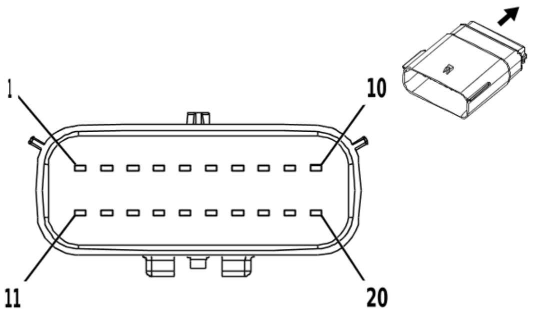
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1 - 14	—	—	—	—	—	Not Occupied	1 - 14	—	—	—	—	—
15	0.5	GN / YE	6846	I	—	Rear License Plate Lamp Control	15	0.5	GN / YE	6846	II	—
16	0.75	BK	1850	I	—	Ground	16	1	BK	1850	II	—
17 - 20	—	—	—	—	—	Not Occupied	17 - 20	—	—	—	—	—

X950 Rear Object Alarm Sensor Wiring Harness to Chassis Wiring Harness - without Chassis Cab

FIGURESIO=6217861 Owner=Owner, Schematics LMD=27-Jan-2023



2871898



2871861

Connector Part Information

Harness Type: Rear Object Alarm Sensor Wiring Harness
OEM Connector: 13504367
Service Connector: Service by Harness - See Part Catalog
Description: 20-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Chassis Wiring Harness
OEM Connector: 33181044
Service Connector: 19351705
Description: 20-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-2A (GY)	No Tool Required
II	86800300	J-35616-3 (GY)	J-38125-217

X950 Rear Object Alarm Sensor Wiring Harness to Chassis Wiring Harness - without Chassis Cab

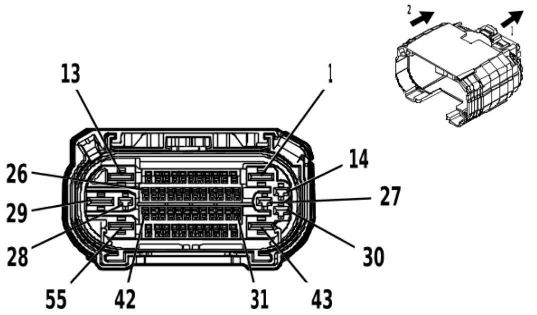
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	RD / GN	6940	I	—	Battery Positive Voltage	1	0.5	RD / GN	6940	II	—
2	—	—	—	—	—	Not Occupied	2	—	—	—	—	—
3	0.5	WH	4100	I	—	AUTOSAR CAN Bus [-] 4 Serial Data	3	0.5	WH	4100	II	—
4	0.5	BU / VT	4101	I	—	AUTOSAR CAN Bus [+] 4 Serial Data	4	0.5	BU / VT	4101	II	—
5 - 8	—	—	—	—	—	Not Occupied	5 - 8	—	—	—	—	—
9	0.5	BN / WH	2374	I	—	Object Sensor Voltage Reference	9	0.5	BN / WH	2374	II	—
10	0.5	YE	2375	I	—	Left Rear Outer Parking Assist Sensor Signal	10	0.5	YE	2375	II	—

X950 Rear Object Alarm Sensor Wiring Harness to Chassis Wiring Harness - without Chassis Cab (cont'd)

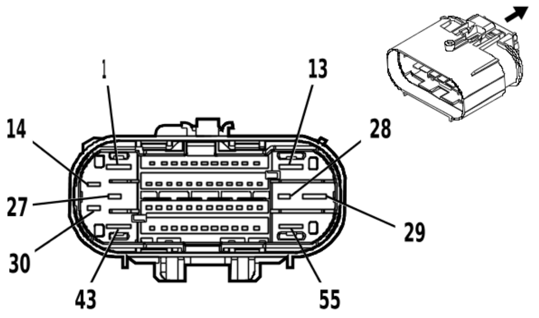
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
11	0.5	YE / BU	2376	I	—	Left Rear Middle Parking Assist Sensor Signal	11	0.5	YE / BU	2376	II	—
12	0.5	YE / WH	2377	I	—	Right Rear Middle Parking Assist Sensor Signal	12	0.5	YE / WH	2377	II	—
13	0.5	YE / VT	2378	I	—	Right Rear Outer Parking Assist Sensor Signal	13	0.5	YE / VT	2378	II	—
14	0.5	BK / GY	2379	I	—	Object Sensor Low Reference	14	0.5	BK / GY	2379	II	—
15	0.5	GN / YE	6846	I	—	Rear License Plate Lamp Control	15	0.5	GN / YE	6846	II	—
16	0.75	BK	1850	I	—	Ground	16	1	BK	1850	II	—
17	0.5	BK / WH	1951	I	—	Signal Ground	17	1	BK	1850	II	—
18 - 20	—	—	—	—	—	Not Occupied	18 - 20	—	—	—	—	—

X950D Engine Wiring Harness Chassis to Engine Wiring Harness (L5P)

FIGURESIO=6217862 Owner=Owner, Schematics LMD=26-Jan-2023



4992168



4993301

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35253720
Service Connector: 19371185
Description: 55-Way F 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35205187
Service Connector: 84727364
Description: 55-Way M 1.2 OCS, 2.8, 6.3 CTS Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19332901	J-35616-35 (VT)	J-38125-212
II	19370818	J-35616-12 (L-BU)	J-38125-215A
III	84634921	J-35616-42 (RD)	J-38125-212
IV	84847992	J-35616-32 (OG)	J-38125-36
V	84867140	J-35616-13 (L-BU)	J-38125-215A
VI	84992391	J-35616-5 (PU)	J-38125-215A

X950D Engine Wiring Harness Chassis to Engine Wiring Harness (L5P)

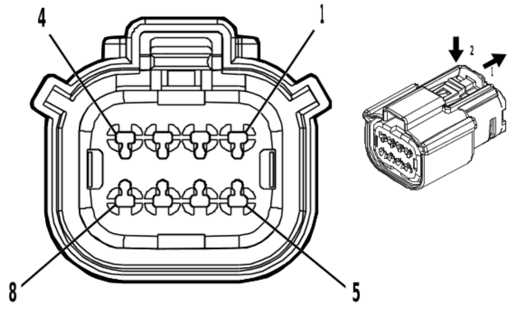
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	GY / BU	1581	III	—	Glow Plug 1 Control	1	2.5	GY / BU	1581	IV	—
2 - 12	—	—	—	—	—	Not Occupied	2 - 12	—	—	—	—	—
13	2.5	GY / WH	1586	III	—	Glow Plug 6 Control	13	2.5	GY / VT	1586	IV	—
14	2.5	GY / BN	1582	I	—	Glow Plug 2 Control	14	2.5	GY / BN	1582	VI	—
15	0.5	WH	4055	II	—	Private Serial Data Powertrain CAN Bus [+] Serial Data	15	0.5	WH	4055	V	—
16	0.5	BU / GY	4054	II	—	Private Serial Data Powertrain CAN Bus [-] Serial Data	16	0.5	BU / GY	4054	V	—

X950D Engine Wiring Harness Chassis to Engine Wiring Harness (L5P) (cont'd)

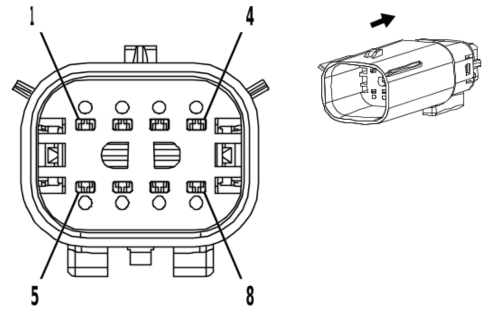
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
17	0.5	BK / WH	6151	II	—	Engine Control Module Ground	17	0.5	BK / WH	6151	V	—
18	0.5	BK / BU	10597	II	—	Engine Control Sensors Low Reference 3	18	0.5	BK / BU	10597	V	—
19	0.5	BN	3681	II	—	Charge Air Cooler Outlet Temperature Sensor Signal	19	0.5	BN	3681	V	—
20	0.75	VT / GN	4320	II	—	Powertrain Sensor Bus Enable	20	0.5	VT / GN	4320	V	—
21	0.5	WH	4055	II	—	Private Serial Data Powertrain CAN Bus [+] Serial Data	21	0.5	WH	4055	V	—
22	0.5	BU / GY	4054	II	—	Private Serial Data Powertrain CAN Bus [-] Serial Data	22	0.5	BU / GY	4054	V	—
23 - 26	—	—	—	—	—	Not Occupied	23 - 26	—	—	—	—	—
27	2.5	GY / GN	1583	I	—	Glow Plug 3 Control	27	2.5	GY / GN	1583	VI	—
28	2.5	WH / BK	1587	I	—	Glow Plug 7 Control	28	2.5	WH / BK	1587	VI	—
29	—	—	—	—	—	Not Occupied	29	—	—	—	—	—
30	2.5	GY / YE	1584	I	—	Glow Plug 4 Control	30	2.5	GY / YE	1584	VI	—
31 - 42	—	—	—	—	—	Not Occupied	31 - 42	—	—	—	—	—
43	2.5	GY / WH	1585	III	—	Glow Plug 5 Control	43	2.5	GY / WH	1585	IV	—
44 - 54	—	—	—	—	—	Not Occupied	44 - 54	—	—	—	—	—
55	2.5	WH / BU	1588	III	—	Glow Plug 8 Control	55	2.5	WH / BU	1588	IV	—

X960A Engine Wiring Harness to Engine Wiring Harness Extension (L5P)

FIGURESIO=6217863 Owner=Owner, Schematics LMD=26-Jan-2023



4846407



2667653

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13520069
Service Connector: 84928314
Description: 8-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Engine Wiring Harness Extension
OEM Connector: 13520577
Service Connector: Service by Harness - See Part Catalog
Description: 8-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	J-35616-3 (GY)	No Tool Required

X960A Engine Wiring Harness to Engine Wiring Harness Extension (L5P)

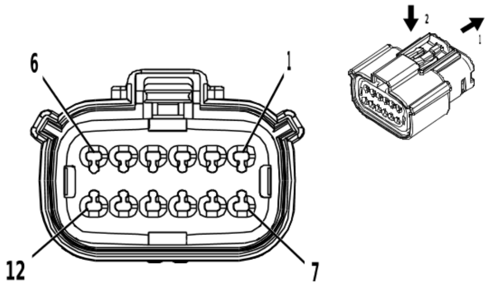
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	VT / BU	6270	I	—	Crankshaft Position Sensor Voltage	1	0.5	VT / BU	6270	II	—
2	0.5	BK / VT	6272	I	—	Crankshaft Position Sensor Low Reference	2	0.5	BK / VT	6272	II	—
3	0.5	GN	6271	I	—	Crankshaft Position Sensor Signal	3	0.5	GN	6271	II	—
4	0.5	BN / RD	2917	I	—	Fuel Rail Pressure Sensor 5V Reference	4	0.5	BN / RD	2917	II	—
5	0.5	BK / GN	2919	I	—	Fuel Rail Pressure Sensor Low Reference	5	0.5	BK / GN	2919	II	—
6	0.5	BU / WH	2918	I	—	Fuel Rail Pressure Sensor Signal	6	0.5	BU / WH	2918	II	—

X960A Engine Wiring Harness to Engine Wiring Harness Extension (L5P) (cont'd)

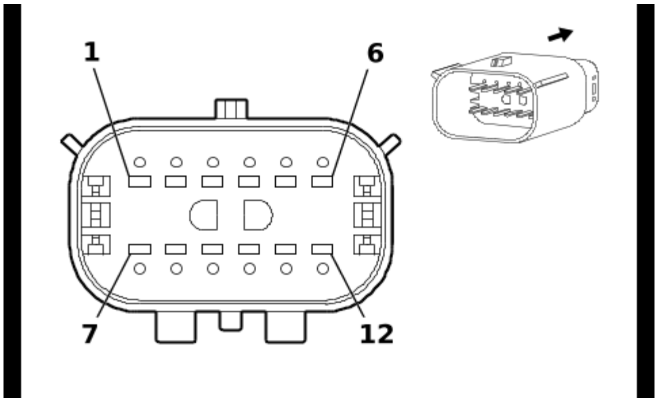
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
7	0.5	BN / YE	2161	I	—	Fuel Rail Pressure Sensor 2 Signal	7	0.5	BN / YE	2161	II	—
8	—	—	—	—	—	Not Occupied	8	—	—	—	—	—

X960B Engine Wiring Harness to Engine Wiring Harness Extension (L5P)

FIGURESIO=6217864 Owner=Owner, Schematics LMD=26-Jan-2023



2871860



1825167

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13503526
Service Connector: 19352907
Description: 12-Way F 1.5 MX Series, Sealed(BK)

Connector Part Information

Harness Type: Engine Wiring Harness Extension
OEM Connector: 13520579
Service Connector: Service by Harness - See Part Catalog
Description: 12-Way M 1.5 MX Series, Sealed(BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	19368973	J-35616-2A (GY)	J-38125-217
II	Not required	J-35616-3 (GY)	No Tool Required

X960B Engine Wiring Harness to Engine Wiring Harness Extension (L5P)

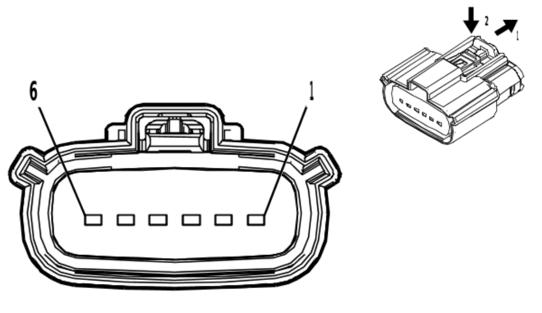
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	BU / RD	460	I	—	Engine Control Sensors 5 Volt Reference 1	1	0.5	BU / RD	460	II	—
2	0.5	BK / YE	548	I	—	Engine Control Sensors Low Reference 1	2	0.5	BK / YE	548	II	—
3	0.5	YE / BN	331	I	—	Oil Pressure Sensor Signal	3	0.5	YE / BN	331	II	—
4	0.5	BU	410	I	—	Engine Coolant Temperature Sensor Signal	4	0.5	BU	410	II	—
5	0.5	BK / YE	548	I	—	Engine Control Sensors Low Reference 1	5	0.5	BK / YE	548	II	—
6	0.5	BK / WH	6151	I	—	Engine Control Module Ground	6	0.5	BK / WH	6151	II	—
7	0.5	BN / GN	1174	I	—	Oil Level Switch Signal	7	0.5	BN / GN	1174	II	—

X960B Engine Wiring Harness to Engine Wiring Harness Extension (L5P) (cont'd)

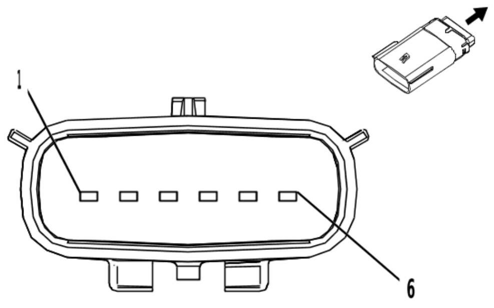
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
8 - 9	—	—	—	—	—	Not Occupied	8 - 9	—	—	—	—	—
10	0.5	YE	2928	I	—	Fuel Metering Solenoid Valve High Control	10	0.5	YE	2928	II	—
11	0.5	BN / BK	2929	I	—	Fuel Metering Solenoid Valve Low Control	11	0.5	BN / BK	2929	II	—
12	—	—	—	—	—	Not Occupied	12	—	—	—	—	—

X962 Engine Wiring Harness to Engine Coolant Temperature Sensor Harness (L8T)

FIGURESIO=6217865 Owner=Owner, Schematics LMD=26-Jan-2023



5126816



3277908

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 13544241
Service Connector: 86801953
Description: 6-Way F 1.5 Series, Sealed(BK)

Connector Part Information

Harness Type: Engine Coolant Temperature Sensor Harness
OEM Connector: Not Available
Service Connector: Service by Harness - See Part Catalog
Description: 6-Way M (BK)

Terminal Part Information

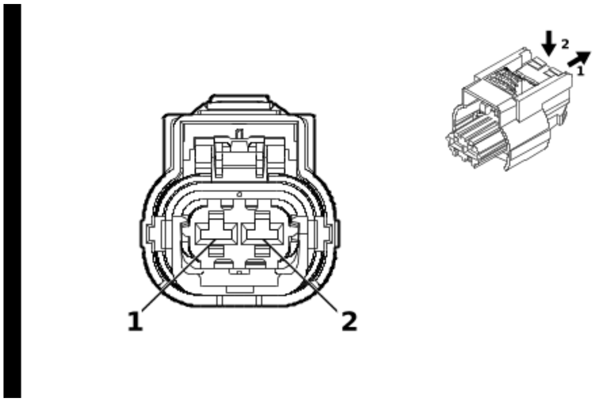
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-14 (GN)	No Tool Required
II	Not required	No Tool Required	No Tool Required

X962 Engine Wiring Harness to Engine Coolant Temperature Sensor Harness (L8T)

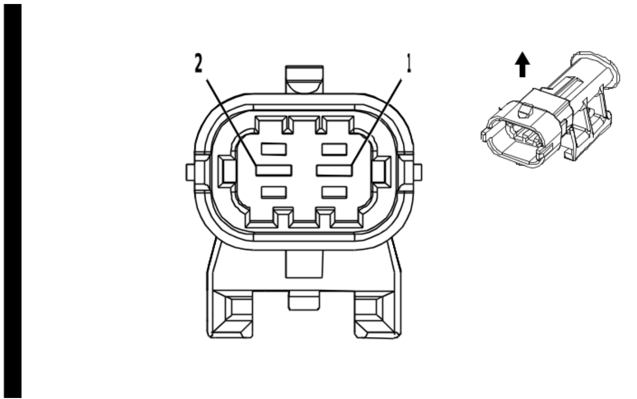
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	BU	410	I	—	Engine Coolant Temperature Sensor Signal	1	0.5	BU	410	II	—
2	0.5	BK / YE	548	I	—	Engine Control Sensors Low Reference 1	2	0.5	BK / YE	548	II	—
3	0.5	YE / BN	331	I	—	Oil Pressure Sensor Signal	3	0.5	YE / BN	331	II	—
4	0.5	BK / YE	548	I	—	Engine Control Sensors Low Reference 1	4	0.5	BK / YE	548	II	—
5	0.5	WH / RD	480	I	—	Engine Control Vehicle Sensors 5 Volt Reference 1	5	0.5	WH / RD	480	II	—
6	—	—	—	—	—	Not Occupied	6	—	—	—	—	—

X977 Engine Wiring Harness to Accessory Wiring Harness (L5P&VYU)

FIGURESIO=6217866 Owner=Owner, Schematics LMD=26-Jan-2023



4992524



2667643

Connector Part Information

Harness Type: Engine Wiring Harness Chassis
OEM Connector: 35182447
Service Connector: 84941154
Description: 2-Way F 2.8 MCP Series, Sealed(BK)

Connector Part Information

Harness Type: Accessory Wiring Harness
OEM Connector: 10864494
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 2.8 Timer Series, Sealed(BK)

Terminal Part Information

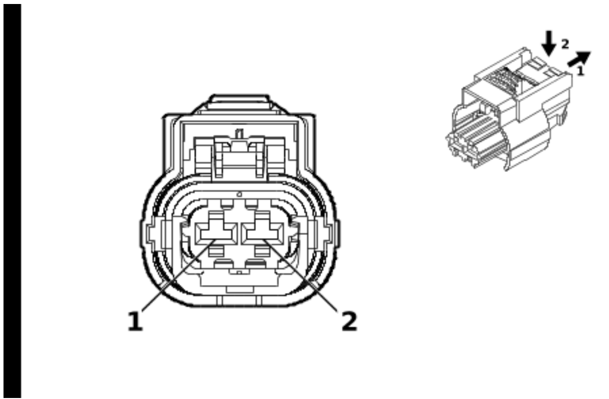
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required
II	Not required	J-35616-5 (PU)	No Tool Required

X977 Engine Wiring Harness to Accessory Wiring Harness (L5P&VYU)

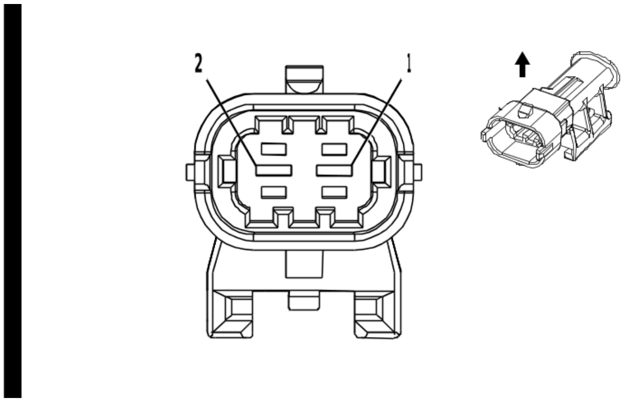
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	BN	25	I	—	Charge Indicator Control	1	0.5	BN	25	II	—
2	0.5	GY	23	I	—	Generator Field Duty Cycle Signal	2	0.5	GY	23	II	—

X977 Engine Wiring Harness to Accessory Wiring Harness (L8T&VYU)

FIGURESIO=6217867 Owner=Owner, Schematics LMD=26-Jan-2023



4992524



2667643

Connector Part Information

Harness Type: Engine Wiring Harness
OEM Connector: 35182447
Service Connector: 84941154
Description: 2-Way F 2.8 MCP Series, Sealed(BK)

Connector Part Information

Harness Type: Accessory Wiring Harness
OEM Connector: 10864494
Service Connector: Service by Harness - See Part Catalog
Description: 2-Way M 2.8 Timer Series, Sealed(BK)

Terminal Part Information

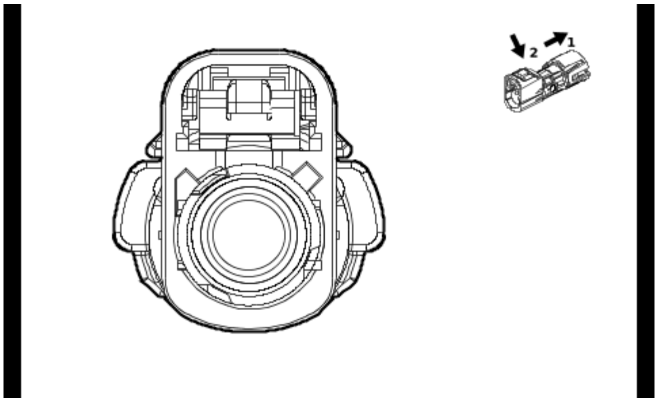
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	J-35616-35 (VT)	No Tool Required
II	Not required	J-35616-5 (PU)	No Tool Required

X977 Engine Wiring Harness to Accessory Wiring Harness (L8T&VYU)

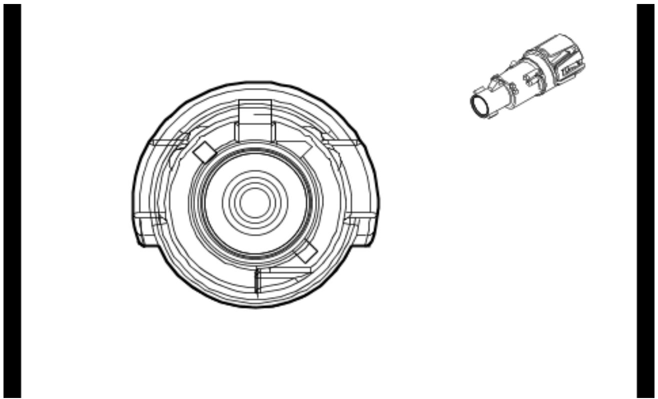
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	BN	25	I	—	Charge Indicator Control	1	0.5	BN	25	II	—
2	0.5	GY	23	I	—	Generator Field Duty Cycle Signal	2	0.5	GY	23	II	—

X985A Rearview Driver Information Camera Rear Closure Coaxial Cable to Inside Rearview Mirror Wiring Harness (DRZ)

FIGURESIO=6217868 Owner=Owner, Schematics LMD=26-Jan-2023



5810829



5633901

Connector Part Information

Harness Type: Rearview Driver Information Camera Rear Closure Coaxial Cable COAX

OEM Connector: Not Available

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F

Connector Part Information

Harness Type: Inside Rearview Mirror Wiring Harness COAX

OEM Connector: 33355540

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way M Coax Type, Sealed(BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not required	No Tool Required	No Tool Required

X985A Rearview Driver Information Camera Rear Closure Coaxial Cable to Inside Rearview Mirror Wiring Harness (DRZ)

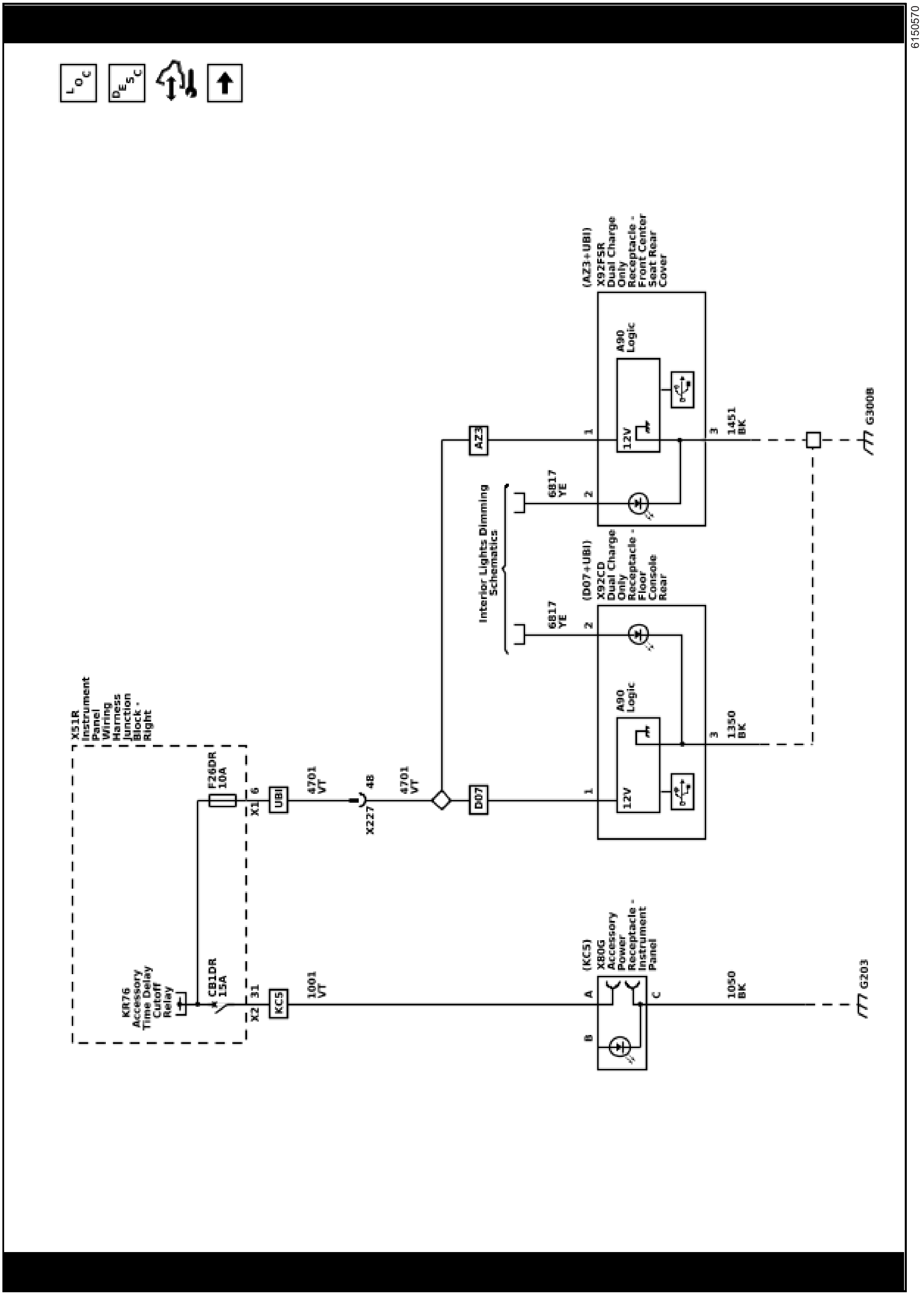
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
—	—	Coax Cable	—	I	—	Full Display Mirror Rear Camera Co-axial Video Signal	—	—	Coax Cable	—	I	—

Power and Signal Distribution

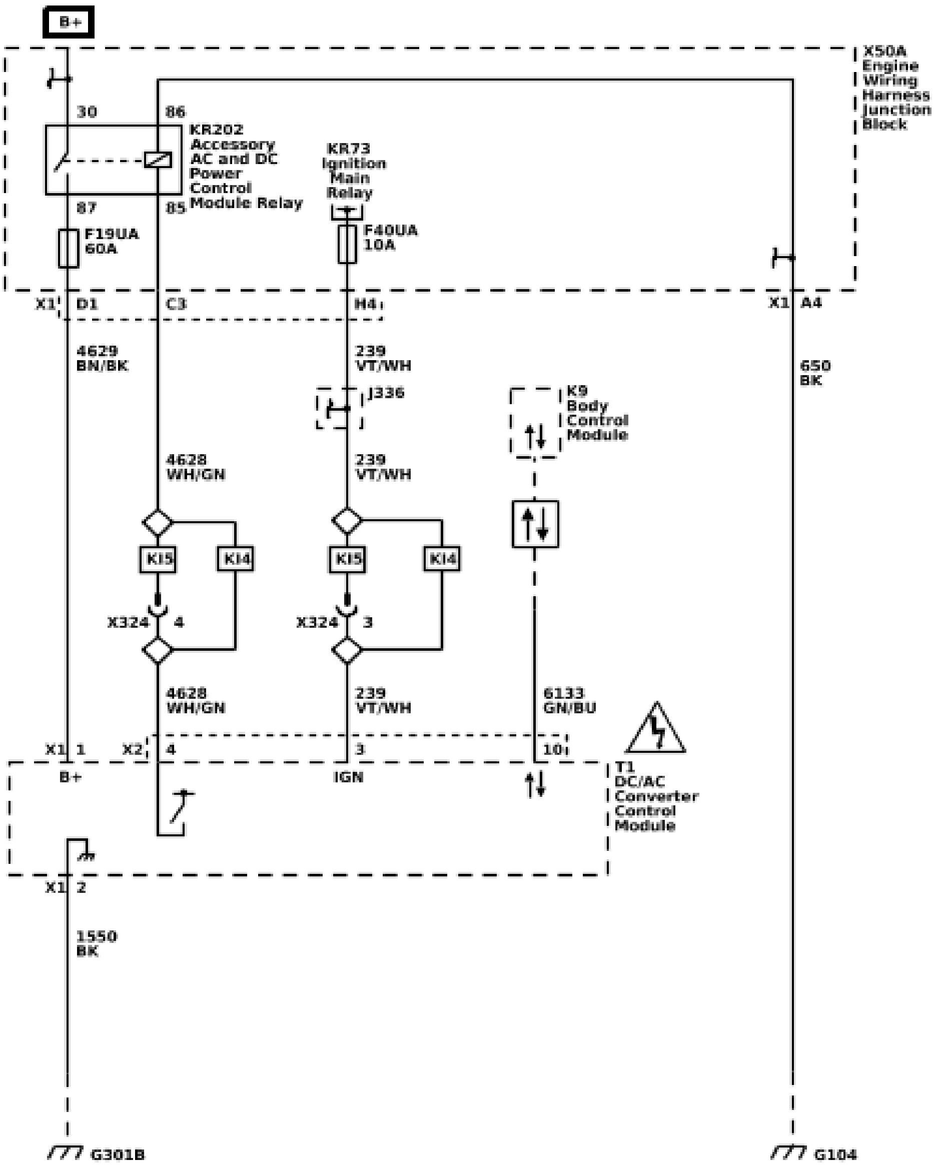
Power Outlets

Schematic and Routing Diagrams

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (Power and Charge Receptacles)

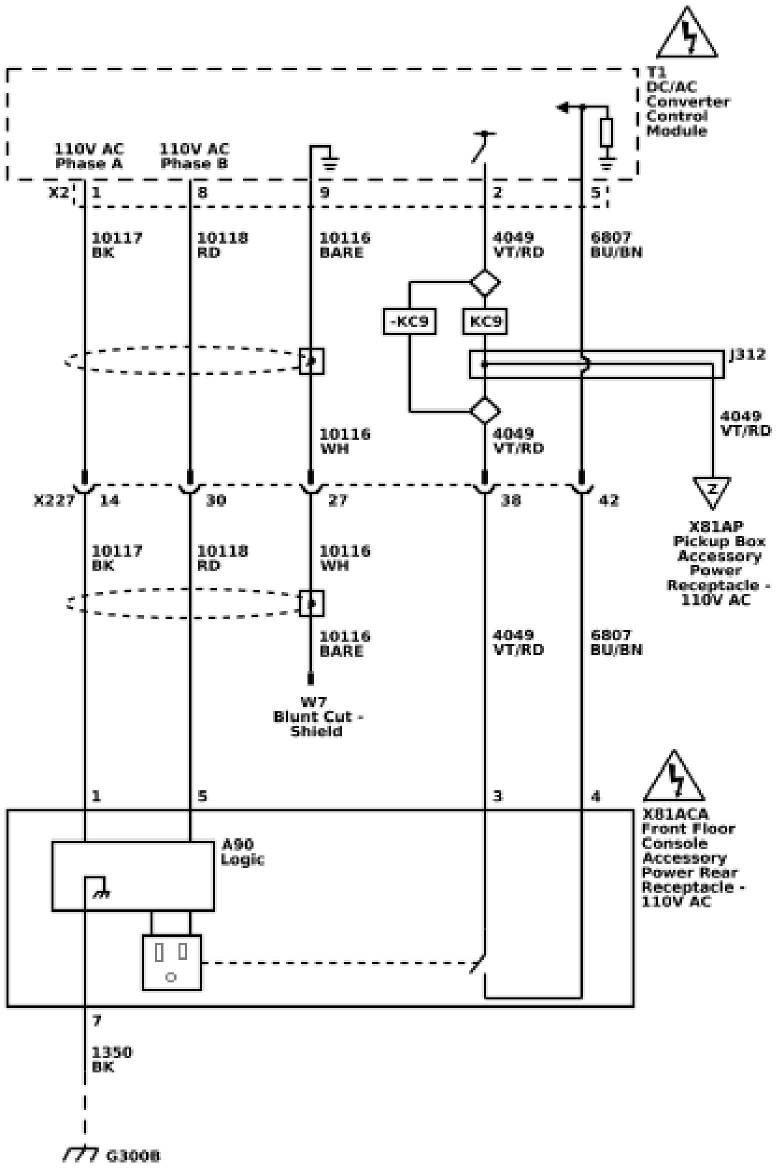

6150570
X51R Instrument Panel Wiring Harness Junction Block - Right
KR76 Accessory Time Delay Cutoff Relay
CB1DR 15A
F26DR 10A
X1 6
X2 31
UBI
KC5
4701 VT
1001 VT
X227 48
4701 VT
D07
AZ3
Interior Lights Dimming Schematics
6817 YE
6817 YE
(KC5) X80G Accessory Power Receptacle - Instrument Panel
A
B
C
(D07+UBI) X92CD Dual Charge Only Receptacle - Floor Console Rear
(AZ3+UBI) X92FSR Dual Charge Only Receptacle - Front Center Seat Rear Cover
1
2
3
12V
A90 Logic
1050 BK
1350 BK
1451 BK
G203
G300B

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (Inverter Module Power, Ground, and Serial Data)


B+
X50A Engine Wiring Harness Junction Block
30
86
KR202 Accessory AC and DC Power Control Module Relay
87
85
F19UA 60A
KR73 Ignition Main Relay
F40UA 10A
X1 D1
C3
H4
X1 A4
4629 BN/BK
239 VT/WH
J336
239 VT/WH
4628 WH/GN
650 BK
K9 Body Control Module
KI5
KI4
KI5
KI4
X324 4
X324 3
4628 WH/GN
239 VT/WH
6133 GN/BU
X1 1
X2 4
3
10
B+
IGN
T1 DC/AC Converter Control Module
X1 2
1550 BK
G301B
G104

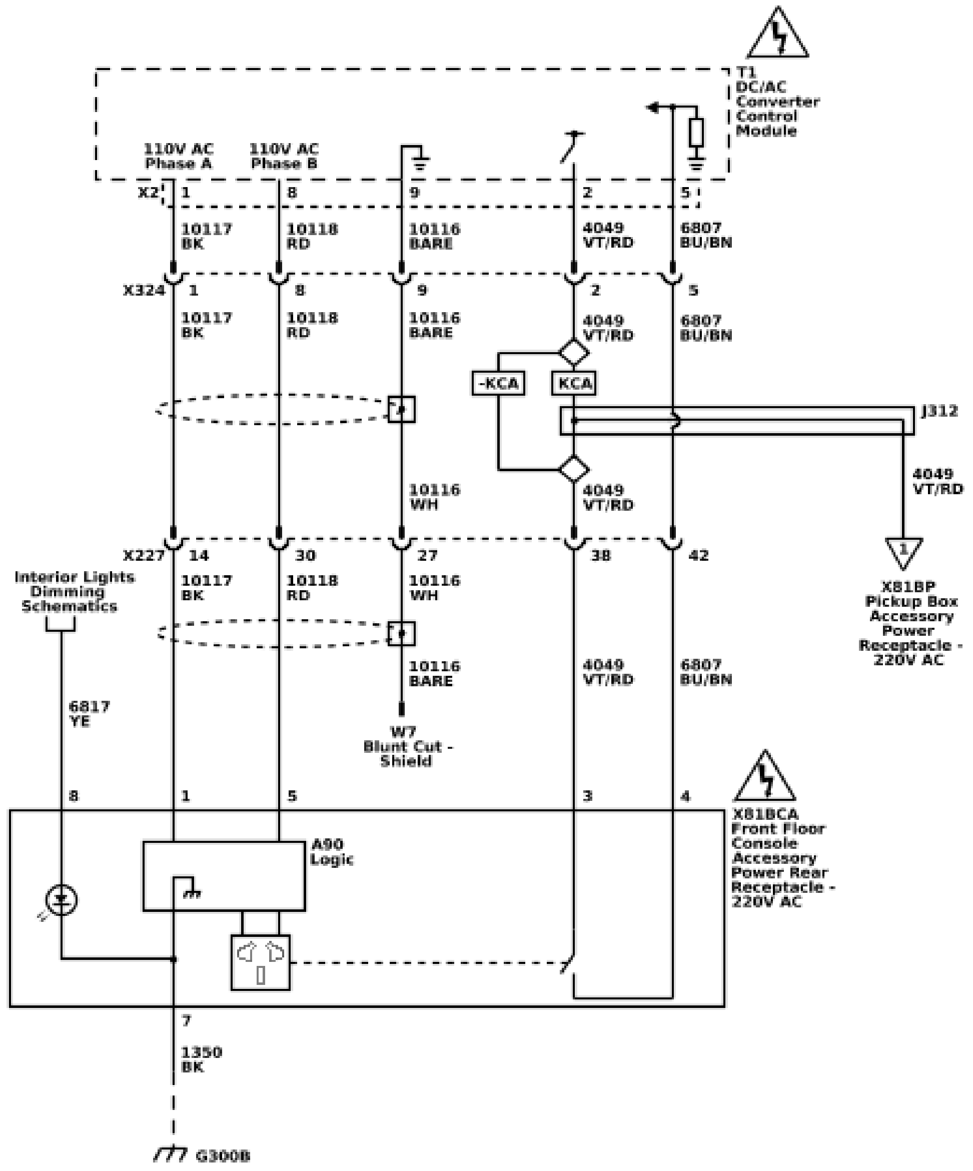
6150444

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (110V AC Accessory Power Rear Receptacle - Front Floor Console)


T1
DC/AC
Converter
Control
Module
110V AC
Phase A
110V AC
Phase B
X2
1
8
9
2
5
10117
BK
10118
RD
10116
BARE
4049
VT/RD
6807
BU/BN
-KC9
KC9
J312
4049
VT/RD
10116
WH
4049
VT/RD
X227
14
30
27
38
42
X81AP
Pickup Box
Accessory
Power
Receptacle -
110V AC
10117
BK
10118
RD
10116
WH
10116
BARE
4049
VT/RD
6807
BU/BN
W7
Blunt Cut -
Shield
1
5
3
4
A90
Logic
X81ACA
Front Floor
Console
Accessory
Power Rear
Receptacle -
110V AC
7
1350
BK
G300B

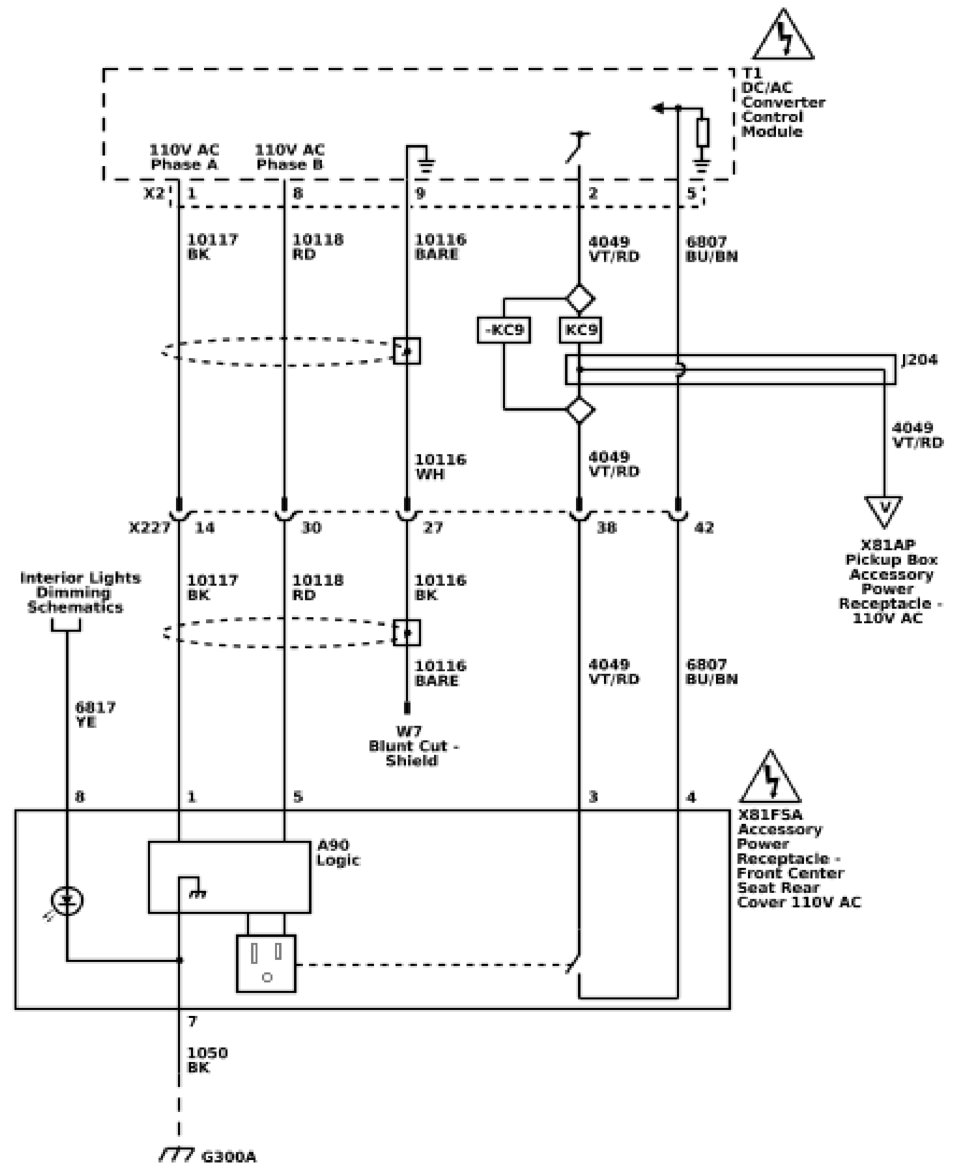
6150445

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (220V AC Accessory Power Rear Receptacle - Front Floor Console)


T1
DC/AC
Converter
Control
Module
110V AC
Phase A
110V AC
Phase B
X2
1
8
9
2
5
10117
BK
10118
RD
10116
BARE
4049
VT/RD
6807
BU/BN
X324
1
8
9
2
5
10117
BK
10118
RD
10116
BARE
4049
VT/RD
6807
BU/BN
-KCA
KCA
J312
4049
VT/RD
10116
WH
4049
VT/RD
X227
14
30
27
38
42
X81BP
Pickup Box
Accessory
Power
Receptacle -
220V AC
Interior Lights
Dimming
Schematics
10117
BK
10118
RD
10116
WH
10116
BARE
4049
VT/RD
6807
BU/BN
6817
YE
W7
Blunt Cut -
Shield
8
1
5
3
4
X81BCA
Front Floor
Console
Accessory
Power Rear
Receptacle -
220V AC
A90
Logic
7
1350
BK
G300B

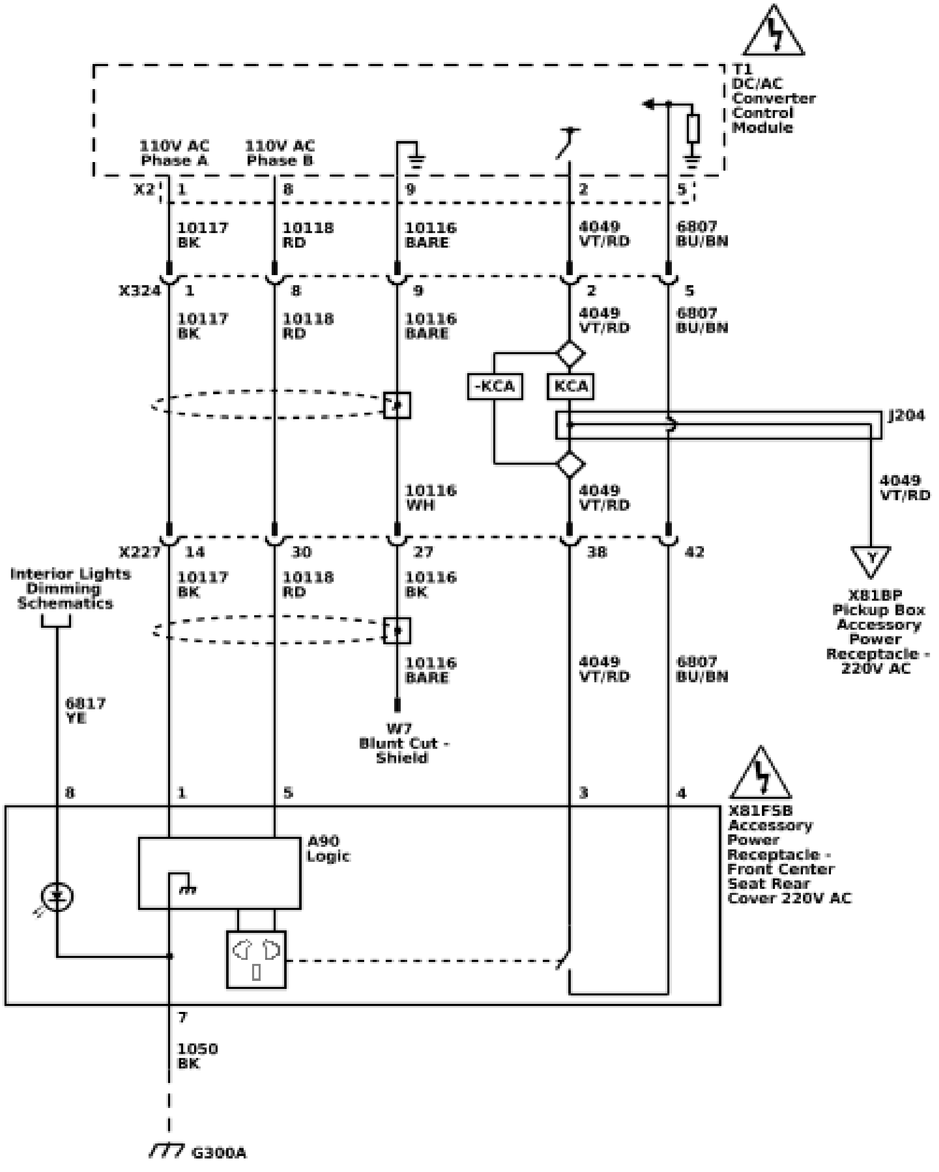
6150446

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (110V AC Accessory Power Receptacle - Front Center Seat Rear)


T1
DC/AC Converter Control Module
110V AC Phase A
110V AC Phase B
X2
1
8
9
2
5
10117 BK
10118 RD
10116 BARE
4049 VT/RD
6807 BU/BN
-KC9
KC9
J204
4049 VT/RD
10116 WH
4049 VT/RD
X81AP Pickup Box Accessory Power Receptacle - 110V AC
X227
14
30
27
38
42
Interior Lights Dimming Schematics
10117 BK
10118 RD
10116 BK
10116 BARE
4049 VT/RD
6807 BU/BN
6817 YE
W7 Blunt Cut - Shield
8
1
5
3
4
A90 Logic
X81F5A Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC
7
1050 BK
G300A

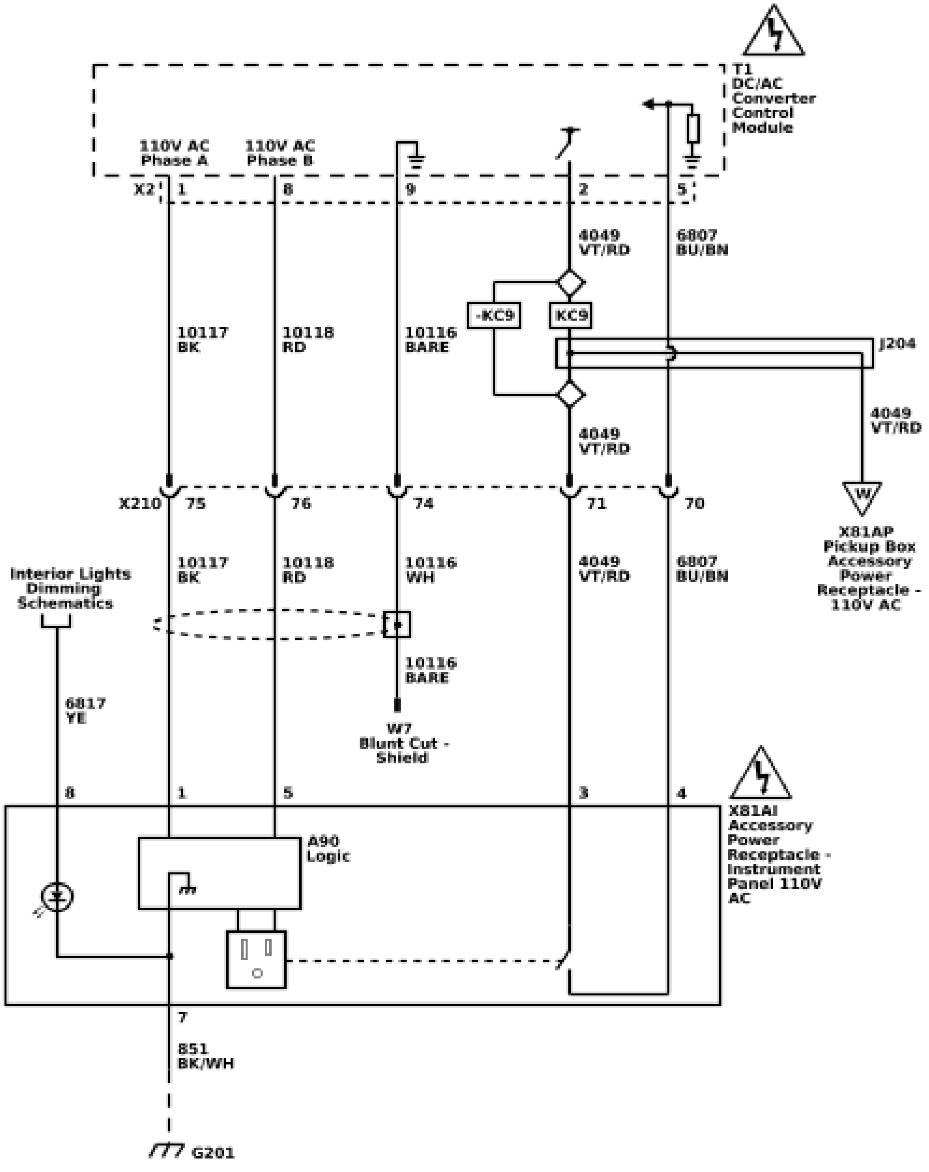
6150447

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (220V AC Accessory Power Receptacle - Front Center Seat Rear (KI4))


T1
DC/AC Converter Control Module
110V AC Phase A
110V AC Phase B
X2
1
8
9
2
5
10117 BK
10118 RD
10116 BARE
4049 VT/RD
6807 BU/BN
X324
-KCA
KCA
J204
10116 WH
X227
14
30
27
38
42
10116 BK
Interior Lights Dimming Schematics
6817 YE
W7 Blunt Cut - Shield
X81BP Pickup Box Accessory Power Receptacle - 220V AC
8
1
5
3
4
A90 Logic
X81F5B Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC
7
1050 BK
G300A

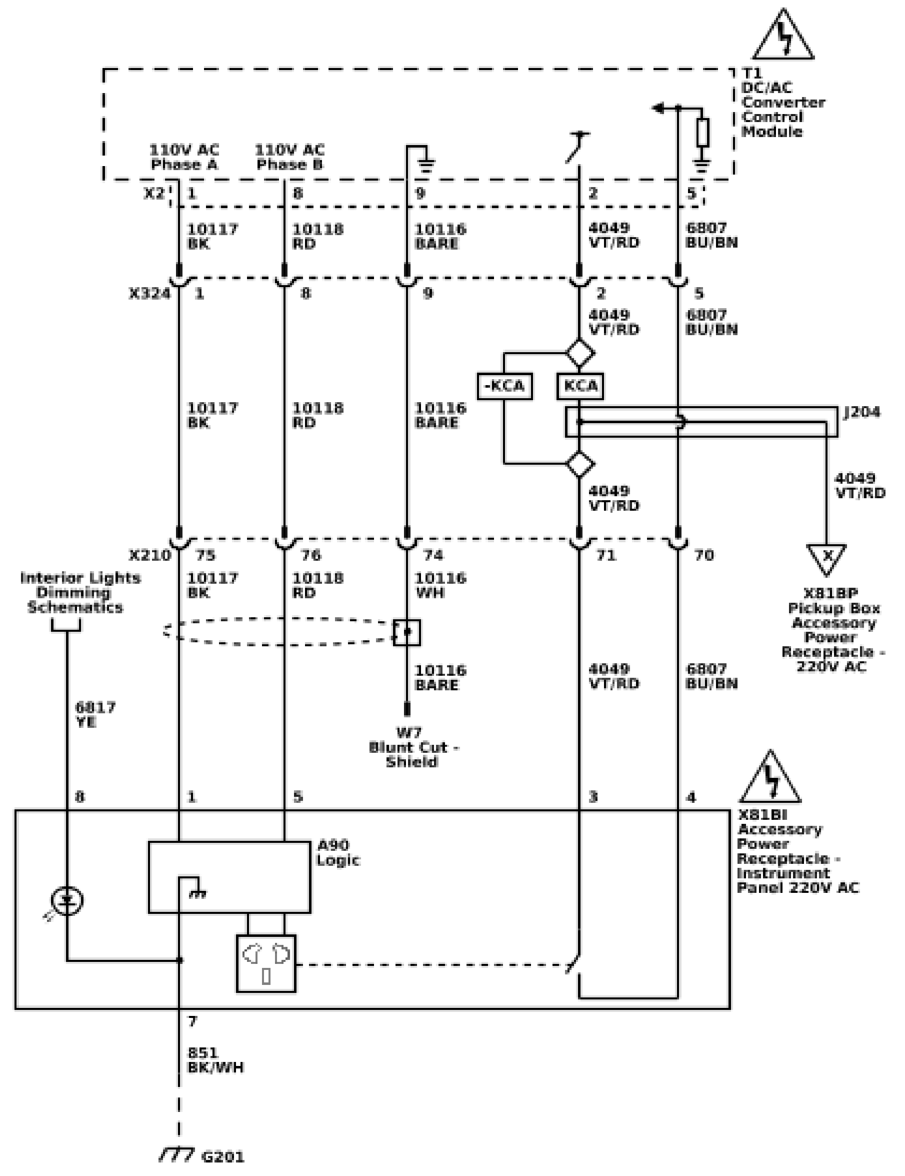
6150571

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (110V AC Accessory Power Receptacle - Instrument Panel (KI5))


T1
DC/AC Converter Control Module
110V AC Phase A
110V AC Phase B
X2
1
8
9
2
5
4049
VT/RD
6807
BU/BN
-KC9
KC9
J204
10117
BK
10118
RD
10116
BARE
4049
VT/RD
4049
VT/RD
W
X81AP
Pickup Box Accessory Power Receptacle - 110V AC
X210
75
76
74
71
70
Interior Lights Dimming Schematics
10117
BK
10118
RD
10116
WH
4049
VT/RD
6807
BU/BN
10116
BARE
6817
YE
W7
Blunt Cut - Shield
8
1
5
3
4
X81AI
Accessory Power Receptacle - Instrument Panel 110V AC
A90
Logic
7
851
BK/WH
G201

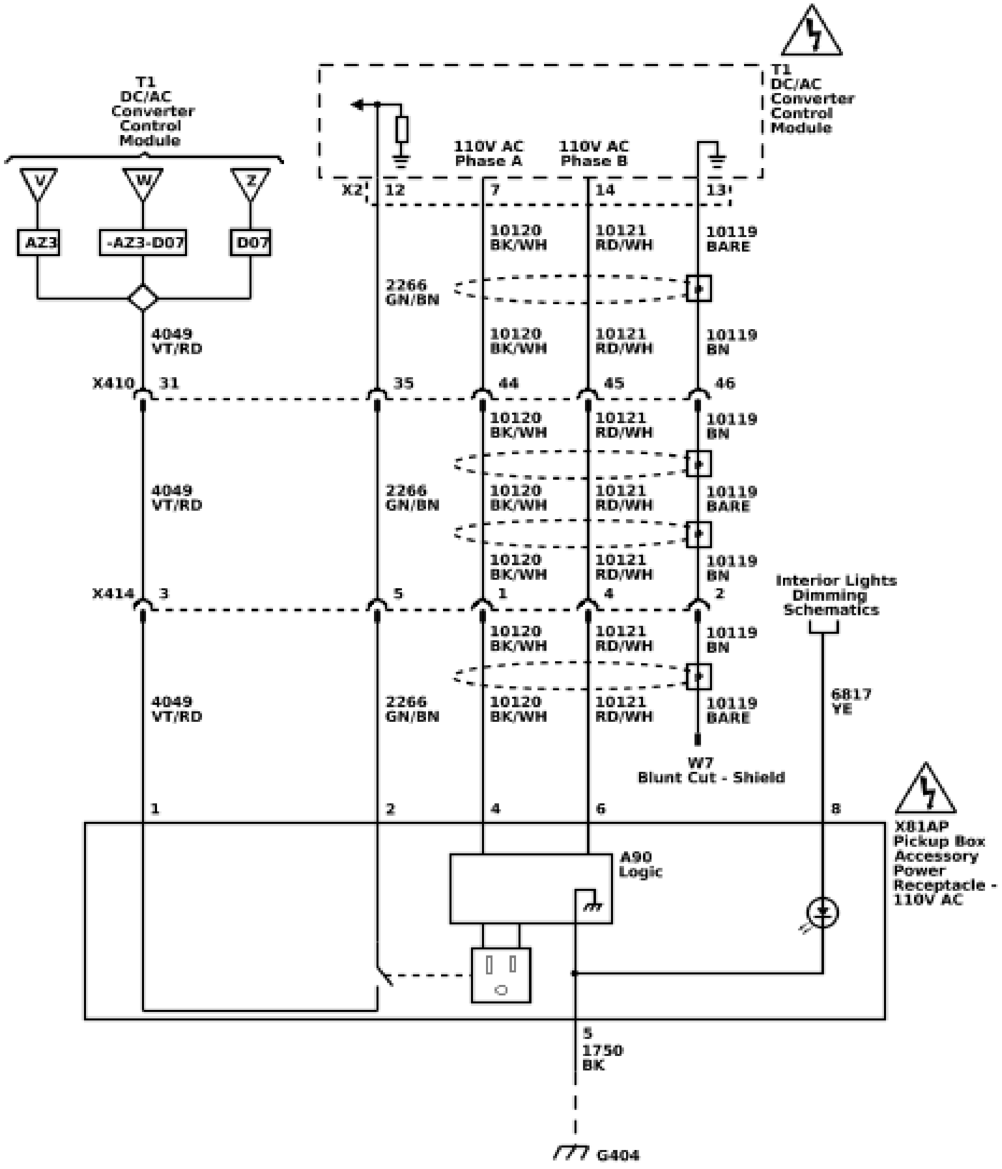
6150572

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (220V AC Accessory Power Receptacle - Instrument Panel (KC9 / KCA))


T1
DC/AC Converter Control Module
110V AC Phase A
110V AC Phase B
X2
1
8
9
2
5
10117 BK
10118 RD
10116 BARE
4049 VT/RD
6807 BU/BN
X324
1
8
9
2
5
4049 VT/RD
6807 BU/BN
-KCA
KCA
J204
10117 BK
10118 RD
10116 BARE
4049 VT/RD
4049 VT/RD
X210
75
76
74
71
70
10117 BK
10118 RD
10116 WH
X
X81BP Pickup Box Accessory Power Receptacle - 220V AC
Interior Lights Dimming Schematics
6817 YE
10116 BARE
W7 Blunt Cut - Shield
4049 VT/RD
6807 BU/BN
8
1
5
3
4
X81BI Accessory Power Receptacle - Instrument Panel 220V AC
A90 Logic
7
851 BK/WH
G201

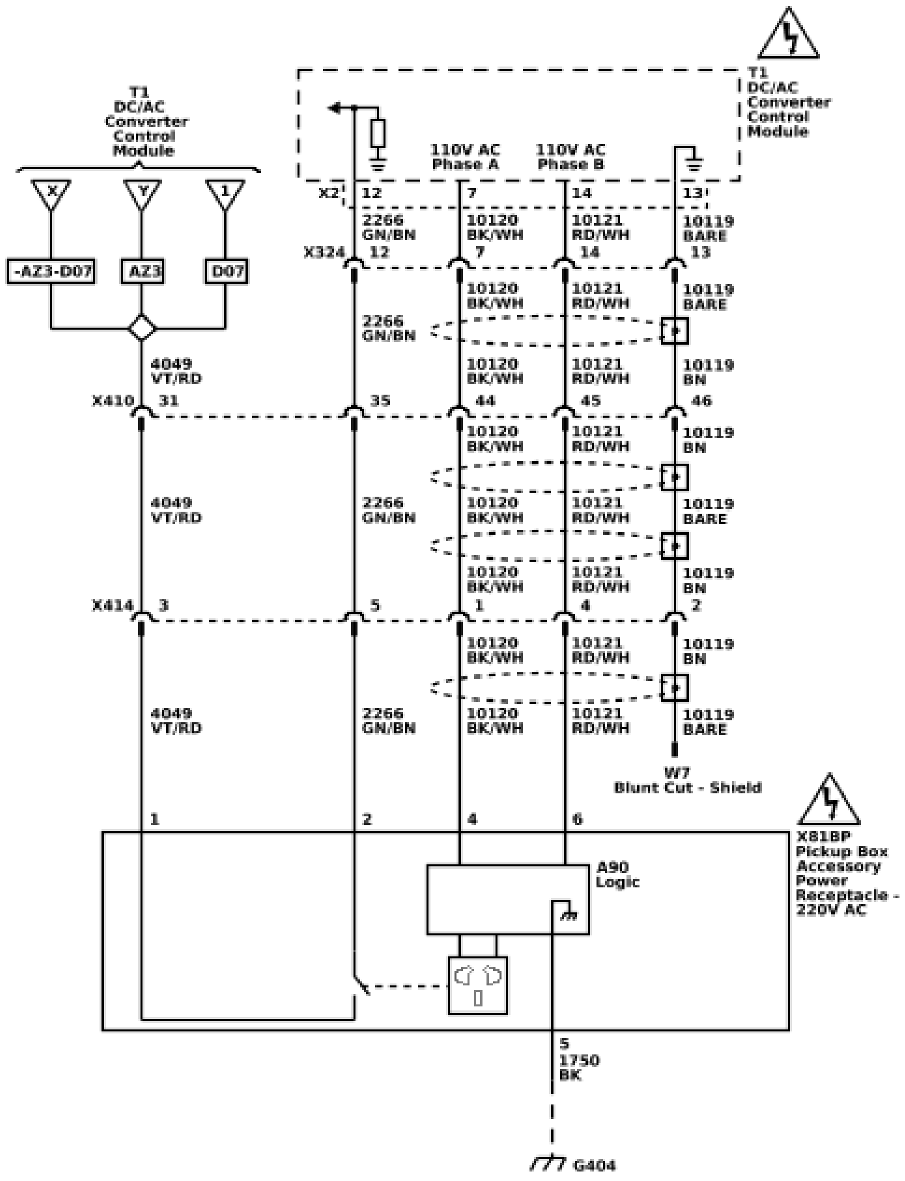
6150573

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (110V AC Pickup Box Accessory Power Receptacle (KC9))


T1
DC/AC
Converter
Control
Module
V
W
Z
AZ3
-AZ3-D07
D07
4049
VT/RD
X410
31
35
44
45
46
X414
3
5
1
4
2
T1
DC/AC
Converter
Control
Module
X2
12
7
14
13
110V AC
Phase A
110V AC
Phase B
10120
BK/WH
10121
RD/WH
10119
BARE
10119
BN
2266
GN/BN
Interior Lights
Dimming
Schematics
6817
YE
W7
Blunt Cut - Shield
1
2
4
6
8
A90
Logic
X81AP
Pickup Box
Accessory
Power
Receptacle -
110V AC
5
1750
BK
G404

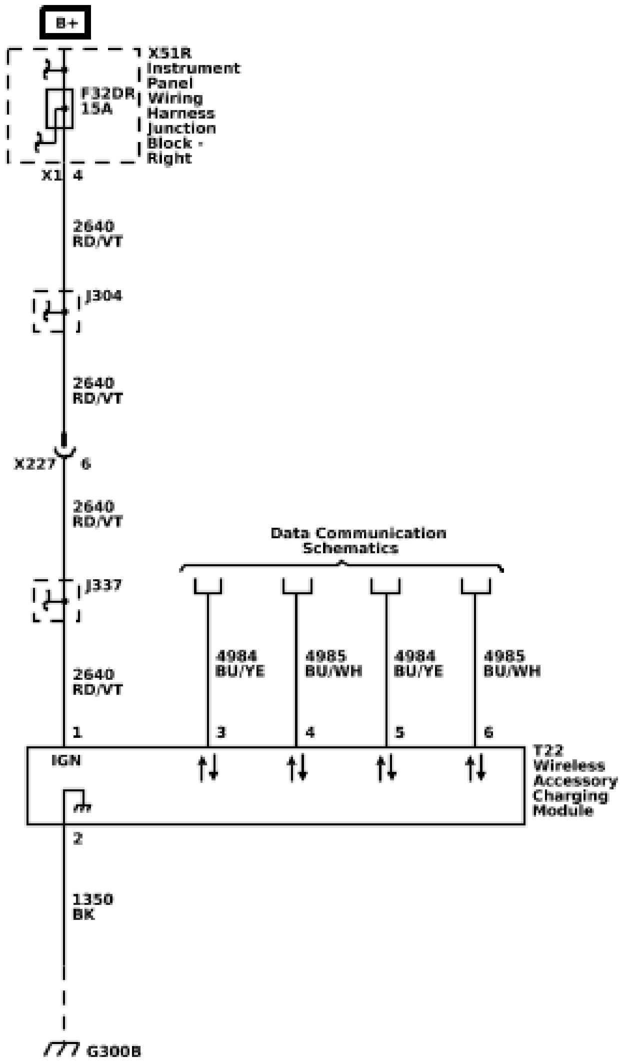
6150574

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (220V AC Pickup Box Accessory Power Receptacle (KCA))


T1
DC/AC
Converter
Control
Module
X
Y
1
-AZ3-D07
AZ3
D07
4049
VT/RD
X410
31
4049
VT/RD
X414
3
4049
VT/RD
1
T1
DC/AC
Converter
Control
Module
110V AC
Phase A
110V AC
Phase B
X2
12
7
14
13
2266
GN/BN
10120
BK/WH
10121
RD/WH
10119
BARE
X324
12
7
14
13
10120
BK/WH
10121
RD/WH
10119
BARE
2266
GN/BN
10120
BK/WH
10121
RD/WH
10119
BN
35
44
45
46
10120
BK/WH
10121
RD/WH
10119
BN
2266
GN/BN
10120
BK/WH
10121
RD/WH
10119
BARE
10120
BK/WH
10121
RD/WH
10119
BN
5
1
4
2
10120
BK/WH
10121
RD/WH
10119
BN
2266
GN/BN
10120
BK/WH
10121
RD/WH
10119
BARE
W7
Blunt Cut - Shield
2
4
6
A90
Logic
X81BP
Pickup Box
Accessory
Power
Receptacle -
220V AC
5
1750
BK
G404

6150575

Cigar Lighter/Power Outlet Schematics Object-ID=6152361 (Wireless Charging (K4C))


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F32DR 15A
X1 4
2640 RD/VT
J304
2640 RD/VT
X227 6
2640 RD/VT
J337
2640 RD/VT
Data Communication Schematics
4984 BU/YE
4985 BU/WH
4984 BU/YE
4985 BU/WH
1
3
4
5
6
IGN
T22 Wireless Accessory Charging Module
2
1350 BK
G300B

6150576

Description and Operation

Mobile Device Wireless Charger Description and Operation

Object-ID=5485017 Owner=Westfall, Jason LMD=15-Jan-2020 LMB=Westfall, Jason

Mobile Device Wireless Charging System

The Mobile Device Wireless Charging System (WCS) is an system for wirelessly charging mobile devices. It is capable of charging the batteries of compatible mobile devices. A compatible device is one that is compliant with Power Matters Alliance (PMA), Wireless Power Consortium (WPC) Standard, or Alliance for Wireless Power (A4WP), meaning that it is equipped with a PMA, WPC, or A4WP wireless charge “receiver” that will work with the charge “transmitter” installed in the vehicle. The devices may utilize built-in charging circuitry or an adapter (external plug-in device which contains the charging circuitry). To check for phone or other device compatibility, refer to GM Total Connect.

Warning: SIO-ID=3660992 LMD=19-Sep-2016 ***Remove all objects from the charging pad before charging your mobile device. Objects, such as coins, keys, rings, paper clips, or cards, between the phone and charging pad will become very hot. On the rare occasion that the charging system does not detect an object, and the object gets wedged between the phone and charger, remove the phone and allow the object to cool before removing it from the charging pad, to prevent burns.***

Charging

To charge a device, place it on the charging surface in the vehicle. There is a charging coil located in the center of the charging surface. The device has a charging coil typically near the center of the device. These coils must be lined up in order for charging to proceed. When the interruptible retained accessory power (IRAP) relay is closed (this is true typically when vehicle ignition is in Run or Accessory position), the WCS will detect the device, establish communications with the device to confirm it is a compatible device, and then deliver charging power to the device via wireless interface. The WCS will be able to deliver 5W to 15W of power as requested by the compatible device. It shall only enter a charging state if communication is established and a compatible device is identified.

The WCS shall not enter a charging state if there is no communication established with a compatible device. Due to differences in objects, a foreign object detection protocol is employed to detect a non-compliant device and hold power transfer initiation until the non-compliant object has been removed and a compliant object has been detected. The charger monitors its internal temperature and will shut down if the charger temperature exceeds 185F (85C).

Indicator

The body control module will detect the device battery is charging and send a serial data message on the GMLAN bus to the radio display. The radio display will indicate a device is currently charging by displaying a lightning bolt over the phone icon. When the indicator is toggling on and off this indicates a thermal limit has been reached and the device will not charge. For more information refer to the owners manual.

Cooling

The wireless charger is kept cool using the HVAC system. There is a dedicated HVAC duct that connects to the Wireless Charging Module bracket (which holds the module and the mat).

Power Outlets Description and Operation

Object-ID=4249313 Owner=Westfall, Jason LMD=06-Feb-2019 LMB=Blanzy, Ken

12 Volt Power Outlet Receptacle Description and Operation

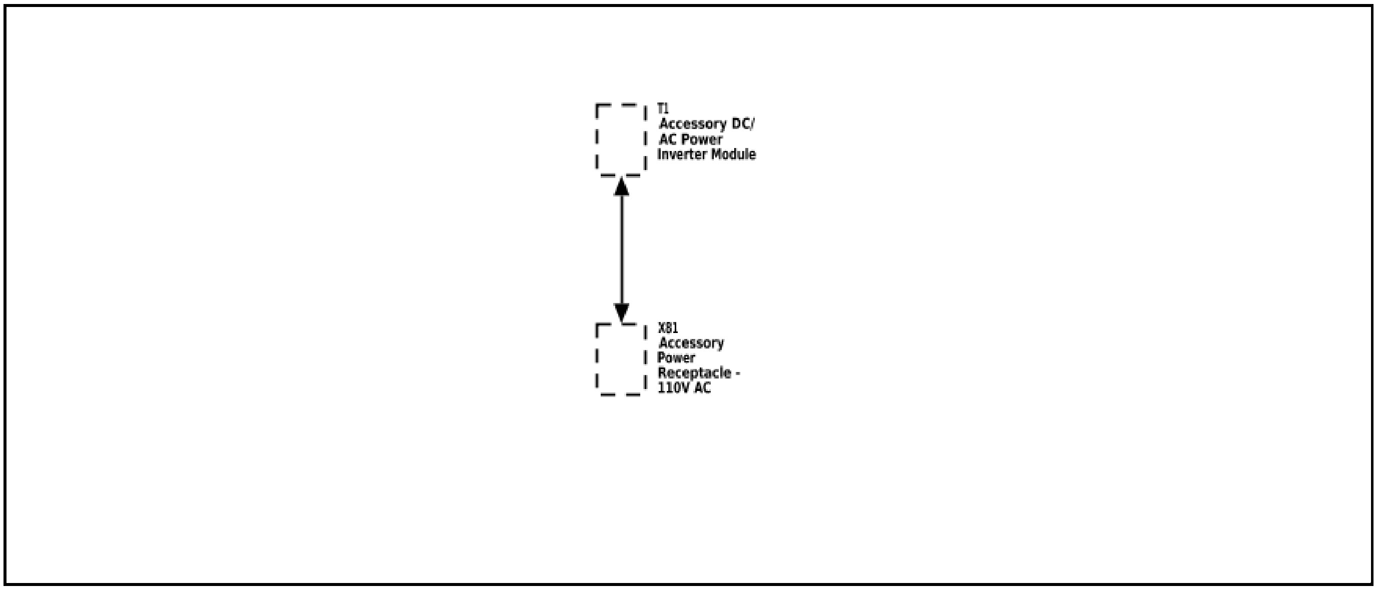
The 12 V accessory power receptacles are supplied with power by the accessory relay.

The vehicle is fitted with a cigarette lighter and/or with a 12 V accessory power receptacle. The cigarette lighter and accessory power outlets are controlled by an ignition operated relay. The accessory power receptacle and cigarette lighter are operational when the ignition is turned to either the On or the Accessories positions. To operate the cigarette lighter, press in the lighter knob. When the element is hot, the lighter automatically pops out and is ready for use.

110 Volt Power Outlet Receptacle System Description

Power Outlets Block Diagram

SIO-ID=3403864 LMD=26-Apr-2016



The alternating current (AC) accessory power outlet system consists of the accessory DC/AC power inverter module and the accessory power receptacle – 110 V AC. The accessory DC/AC power inverter module converts 12 V direct current (DC) battery power to 110 V at 60 Hertz (Hz) AC power to operate AC powered devices. The accessory DC/AC power inverter module provides up to 150 watts of power. The accessory power receptacle – 110 V AC provides the usual connection for AC powered devices.

110 Volt Power Outlet Receptacle System Operation

The accessory DC/AC power inverter module receives fuse protected battery voltage and is connected to the 12 V electrical system ground. The accessory power receptacle – 110 V AC has an internal switch, that detects when an AC powered device is plugged into the outlet. When the ignition is ON, and an AC powered device is plugged into the accessory power receptacle – 110 V AC, the normally open switch in the accessory power receptacle – 110 V AC, closes. When the accessory DC/AC power inverter module detects the voltage from the accessory power receptacle – 110 V AC switch, the inverter module begins to supply 110 V AC to the accessory power receptacle – 110 V AC after a 1.5 s delay. The accessory AC power system is protected against circuit overload and circuit shorts to ground.

110 Volt Power Outlet Receptacle Isolation Fault Protection

The accessory DC/AC power inverter module contains a ground fault circuit interrupter (GFCI). GFCI monitors the 110 V circuit for a short to vehicle chassis ground. If a 110 V AC short to ground is detected, the accessory DC/AC power inverter module will turn OFF. The module remains OFF, until the AC powered device is unplugged from the outlet, and then plugged into the outlet after a 3 s delay.

110 Volt Power Outlet Receptacle Overload Shutdown

The accessory DC/AC power inverter module will turn OFF if the current in the 110 V circuit is greater than 3.8 A for 1 s , or 2.5 A for 10 s . The module will turn ON again, when the AC powered device is unplugged from the outlet, and then plugged into the outlet after a 3 s delay.

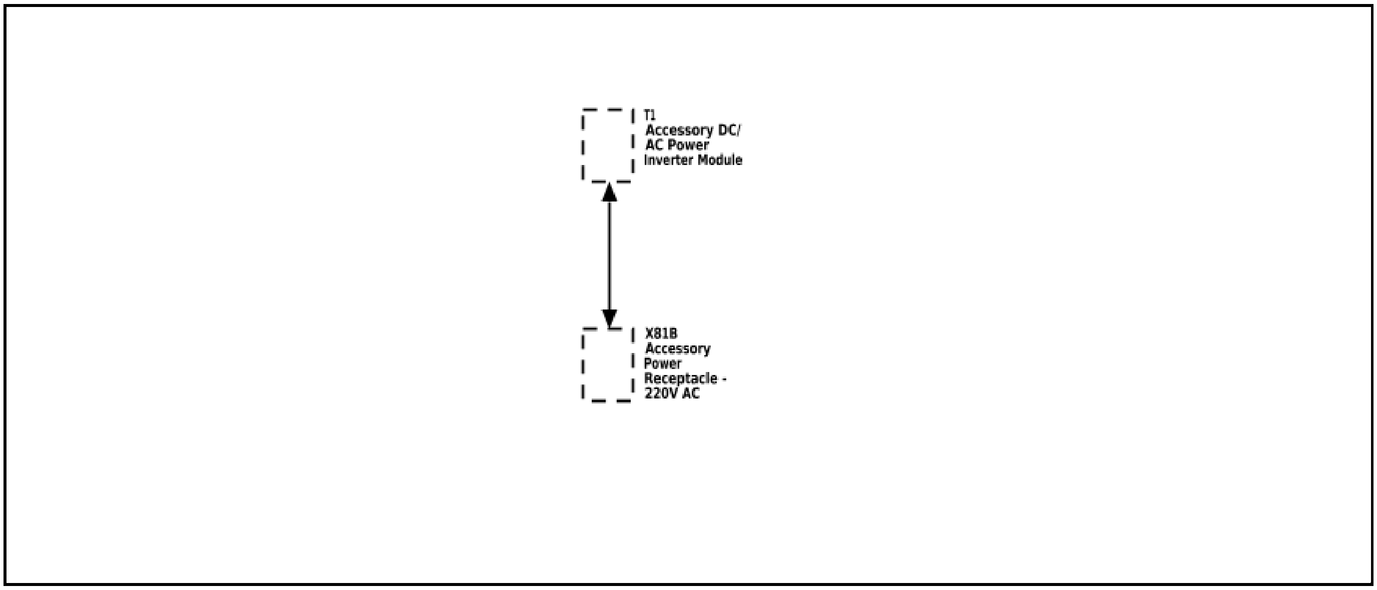
110 Volt Power Outlet Receptacle Internal Shutdown

The accessory DC/AC power inverter module will turn OFF if the B+ supply voltage is greater than 16.5 V or less than 11 V. The module will also turn OFF if the device temperature is greater than 85°C (185°F). The module will turn ON again, after the shutdown condition is corrected, and the AC powered device is unplugged from the outlet, and then plugged into the outlet.

230 Volt Power Outlet Receptacle System Description

Power Outlets Block Diagram

SIO-ID=3403865 LMD=27-Mar-2019



3403853

The alternating current (AC) accessory power outlet system consists of the accessory DC/AC power inverter module and the accessory power receptacle – 220V AC. The accessory DC/AC power inverter module converts 12 V direct current (DC) battery power to 220–230 V at 50 Hertz (Hz) AC power to operate AC powered devices. The accessory DC/AC power inverter module provides up to 150 watts of power. The accessory power receptacle – 220V AC provides the usual connection for AC powered devices.

230 Volt Power Outlet Receptacle System Operation

The accessory DC/AC power inverter module receives fuse protected battery voltage and is connected to the 12 V electrical system ground. The accessory power receptacle – 220V AC has an internal switch, that detects when an AC powered device is plugged into the outlet. When the ignition is ON, and an AC powered device is plugged into the accessory power receptacle – 220V AC, the normally open switch in the accessory power receptacle – 220V AC, closes. When the accessory DC/AC power inverter module detects the voltage from the accessory power receptacle – 220V AC switch, the inverter module begins to supply 220–230 V AC to the accessory power receptacle – 220V AC after a 1.5 second delay. The accessory AC power system is protected against circuit overload and circuit shorts to ground.

230 Volt Power Outlet Receptacle Isolation Fault Protection

The accessory DC/AC power inverter module contains a ground fault circuit interrupter (GFCI). GFCI monitors the 230 V circuit for a short to vehicle chassis ground. If a 230 V AC short to ground is detected, the accessory DC/AC power inverter module will turn OFF. The module remains OFF, until the AC powered device is unplugged from the outlet, and then plugged into the outlet after a 3 s delay.

230 Volt Power Outlet Receptacle Overload Shutdown

The accessory AC/DC power control module will turn OFF if the current in the 230 V circuit is greater than 3.8 A for 1 second, or 2.5 A for 10 seconds. The module will turn ON again, when the AC powered device is unplugged from the outlet, and then plugged into the outlet after a 3 second delay.

230 Volt Power Outlet Receptacle Internal Shutdown

The accessory DC/AC power inverter module will turn OFF if the B+ supply voltage is greater than 16.5 V or less than 11 V. The module will also turn OFF if the device temperature is greater than 85°C (185°F). The module will turn ON again, after the shutdown condition is corrected, and the AC powered device is unplugged from the accessory power receptacle – 220V AC, and then plugged into the accessory power receptacle – 220V AC.

USB Receptacle Description and Operation (USS)

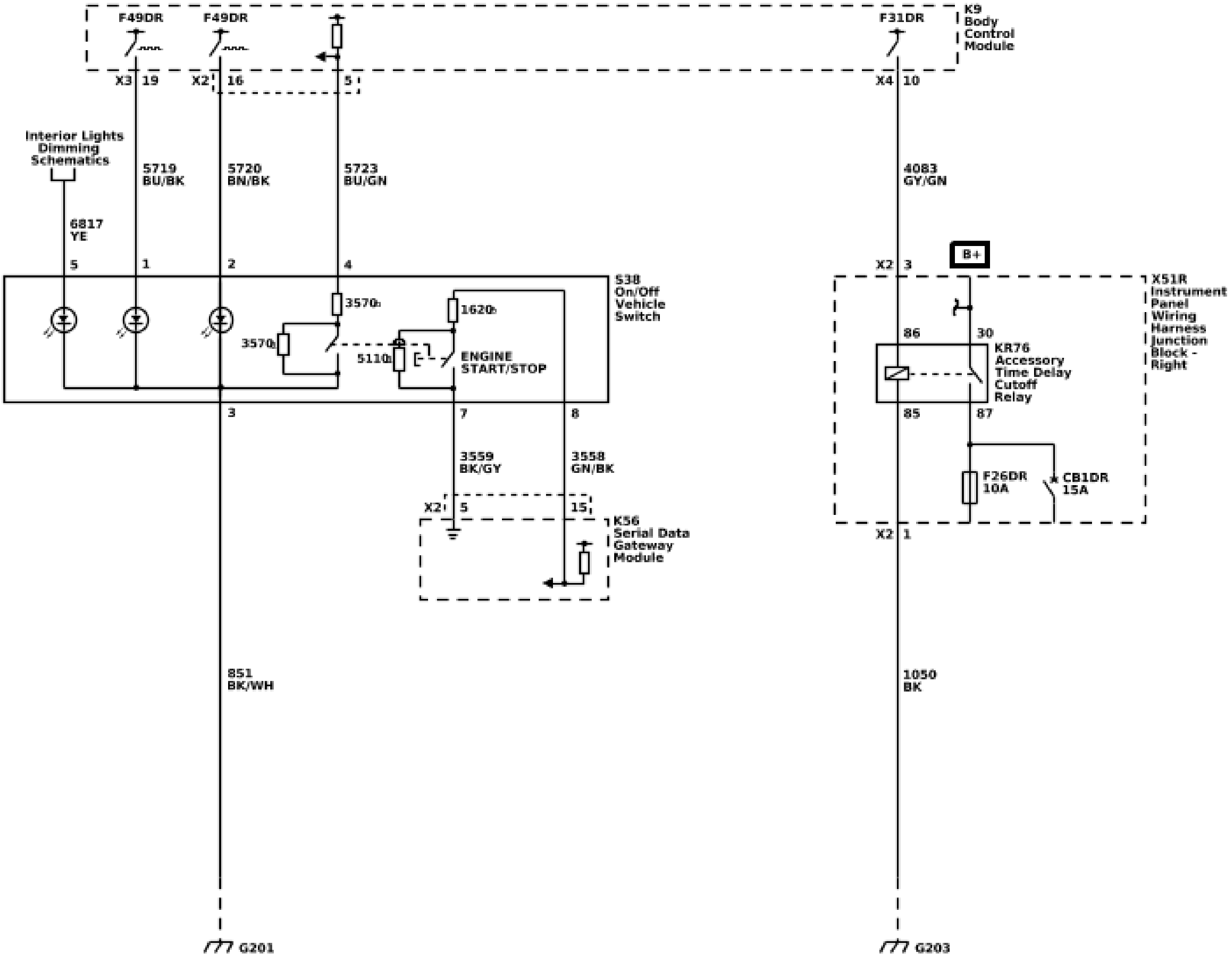
The vehicle is fitted with USB charge port receptacles at the rear of the floor console. These USB receptacles are for charging devices only. The USB receptacles are controlled by an ignition operated relay and are operational when the ignition is turned to either the On or the Accessories positions.

Power and Signal Distribution

Wiring Systems and Power Management

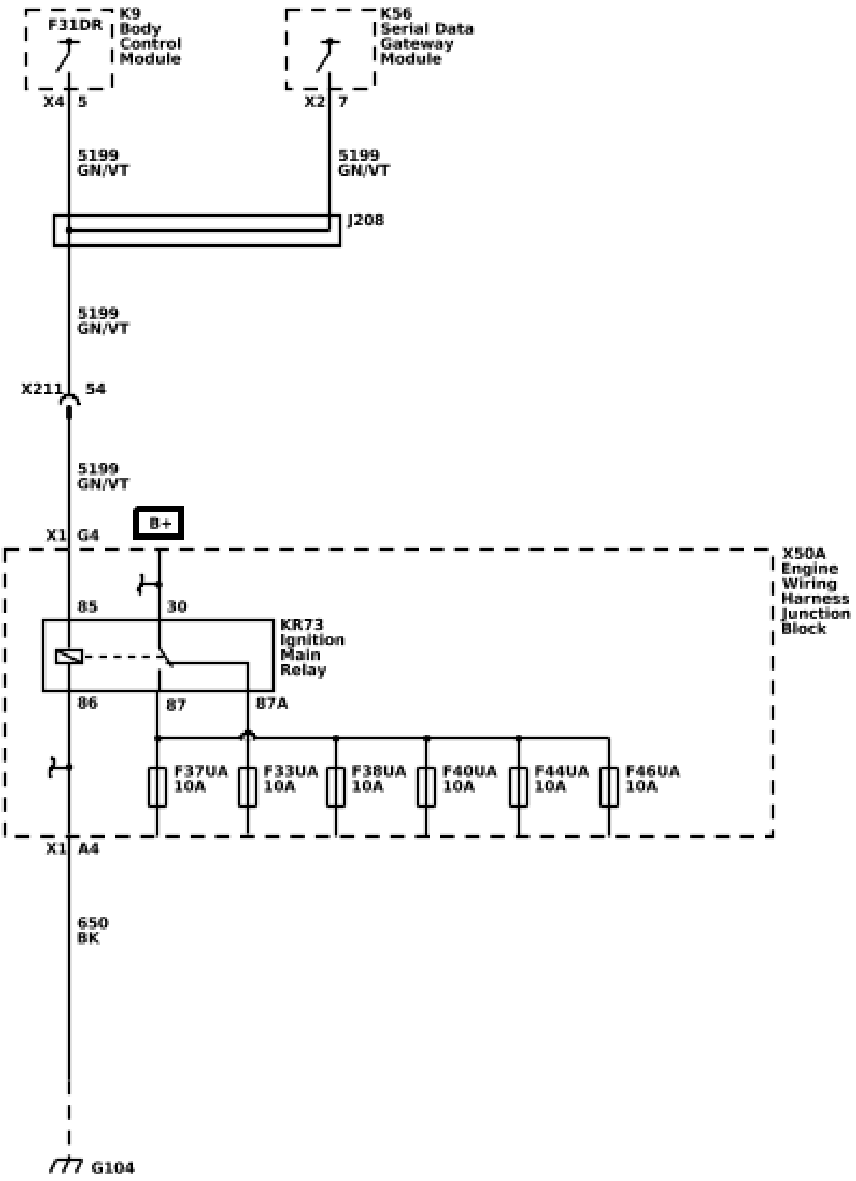
Schematic and Routing Diagrams

Power Moding Schematics Object-ID=6152363 (On/Off Vehicle Switch and Retained Accessory Power)


F49DR
F49DR
F31DR
K9 Body Control Module
X3 19
X2 16
5
X4 10
Interior Lights Dimming Schematics
6817 YE
5719 BU/BK
5720 BN/BK
5723 BU/GN
4083 GY/GN
5
1
2
4
X2 3
B+
S38 On/Off Vehicle Switch
3570Ω
3570Ω
1620Ω
5110Ω
ENGINE START/STOP
3
7
8
3559 BK/GY
3558 GN/BK
X2 5
15
K56 Serial Data Gateway Module
86
30
KR76 Accessory Time Delay Cutoff Relay
85
87
F26DR 10A
CB1DR 15A
X51R Instrument Panel Wiring Harness Junction Block - Right
X2 1
851 BK/WH
1050 BK
G201
G203

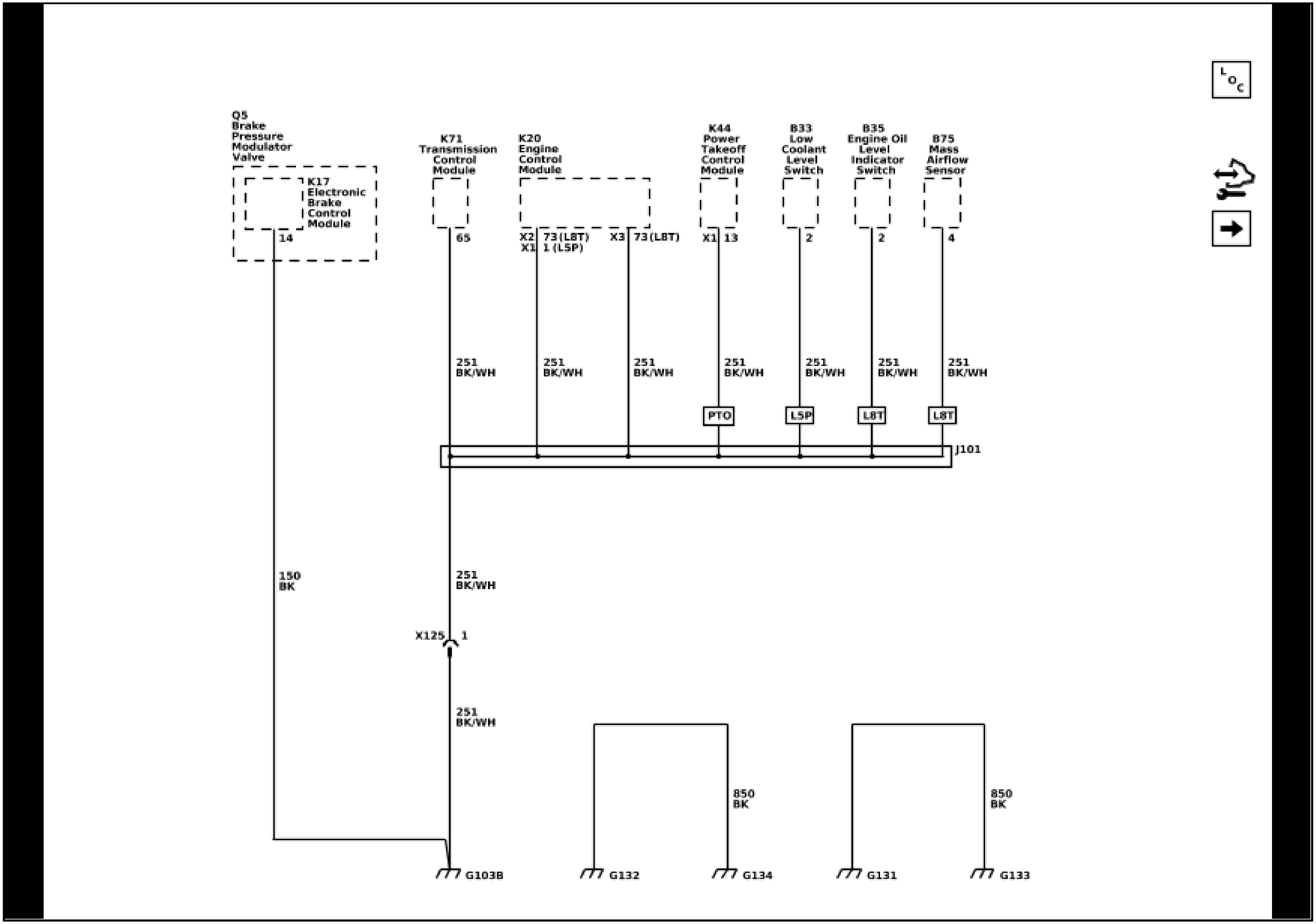
6150608

Power Moding Schematics Object-ID=6152363 (Ignition Main Relay)


F31DR
K9
Body
Control
Module
X4 5
K56
Serial Data
Gateway
Module
X2 7
5199
GN/VT
5199
GN/VT
J208
5199
GN/VT
X211 54
5199
GN/VT
X1 G4
B+
X50A
Engine
Wiring
Harness
Junction
Block
85
30
KR73
Ignition
Main
Relay
86
87
87A
F37UA
10A
F33UA
10A
F38UA
10A
F40UA
10A
F44UA
10A
F46UA
10A
X1 A4
650
BK
G104

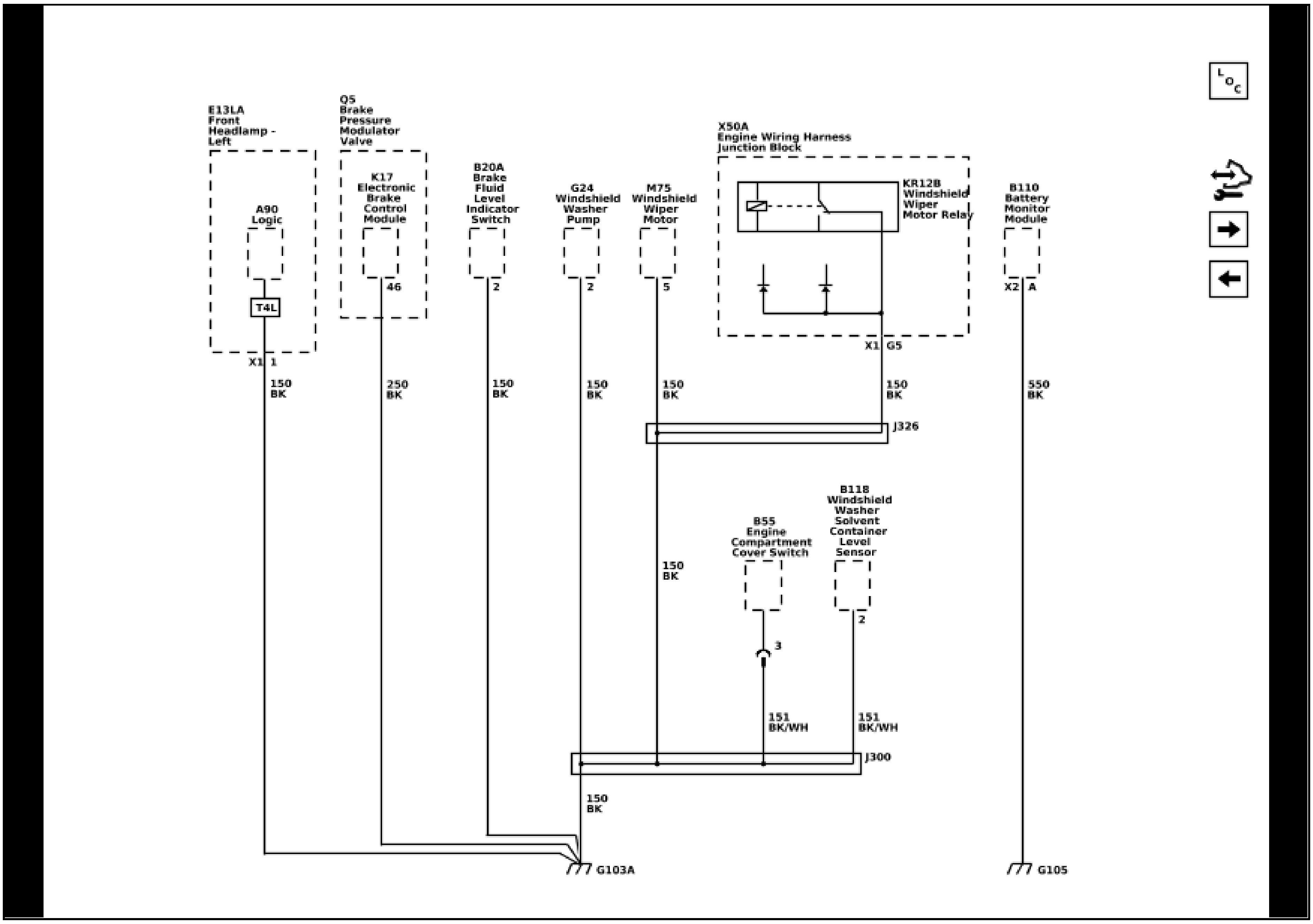
6150609

Ground Distribution Schematics Object-ID=6152366 (G103B, G131, G132, G133, and G134)

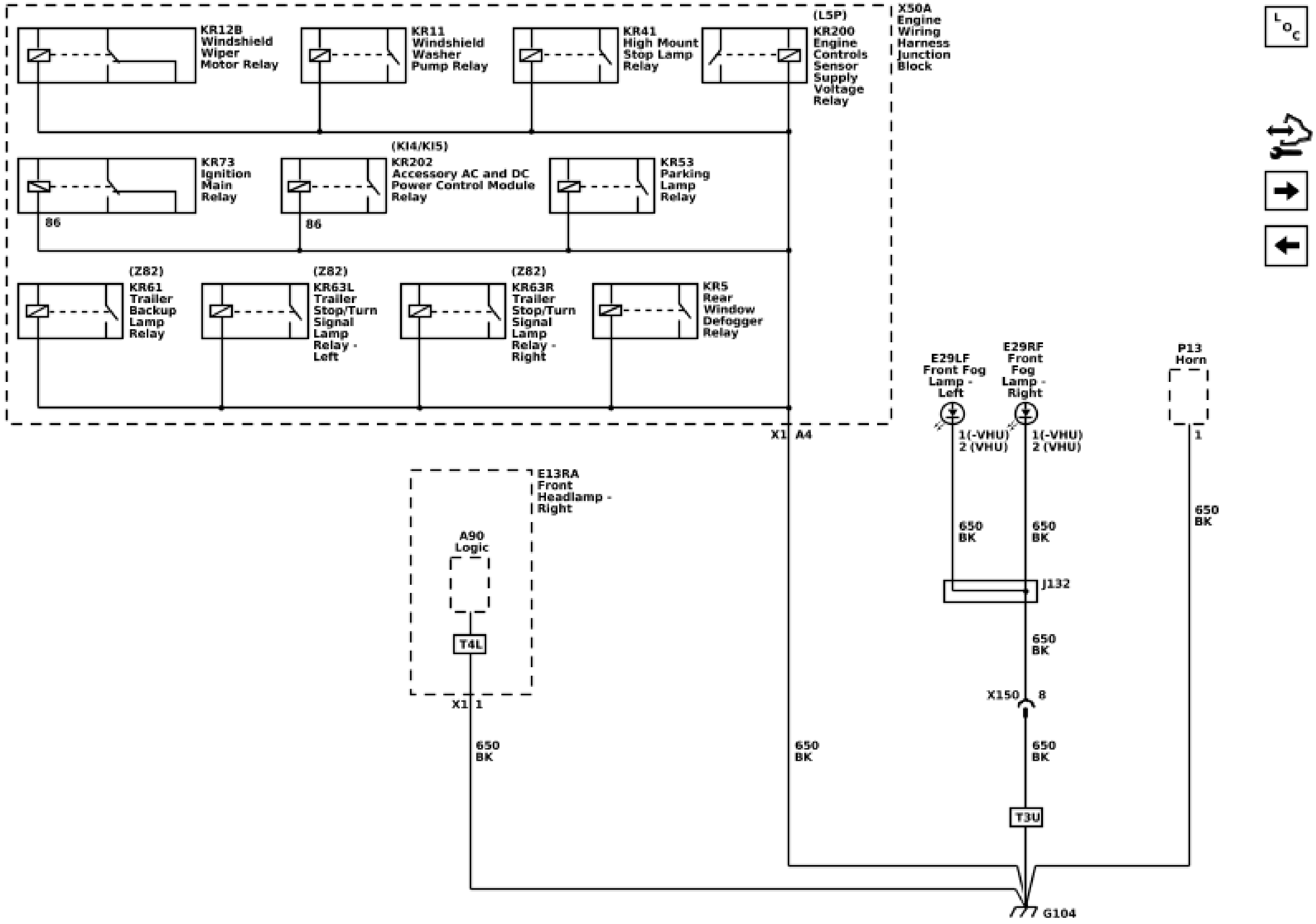

Q5
Brake
Pressure
Modulator
Valve
K17
Electronic
Brake
Control
Module
14
150
BK
K71
Transmission
Control
Module
65
251
BK/WH
K20
Engine
Control
Module
X2 73 (L8T)
X1 1 (L5P)
X3 73 (L8T)
K44
Power
Takeoff
Control
Module
X1 13
B33
Low
Coolant
Level
Switch
2
B35
Engine Oil
Level
Indicator
Switch
2
B75
Mass
Airflow
Sensor
4
PTO
L5P
L8T
L8T
J101
X125
1
850
BK
G103B
G132
G134
G131
G133

6150611

Ground Distribution Schematics Object-ID=6152366 (G103A and G105)

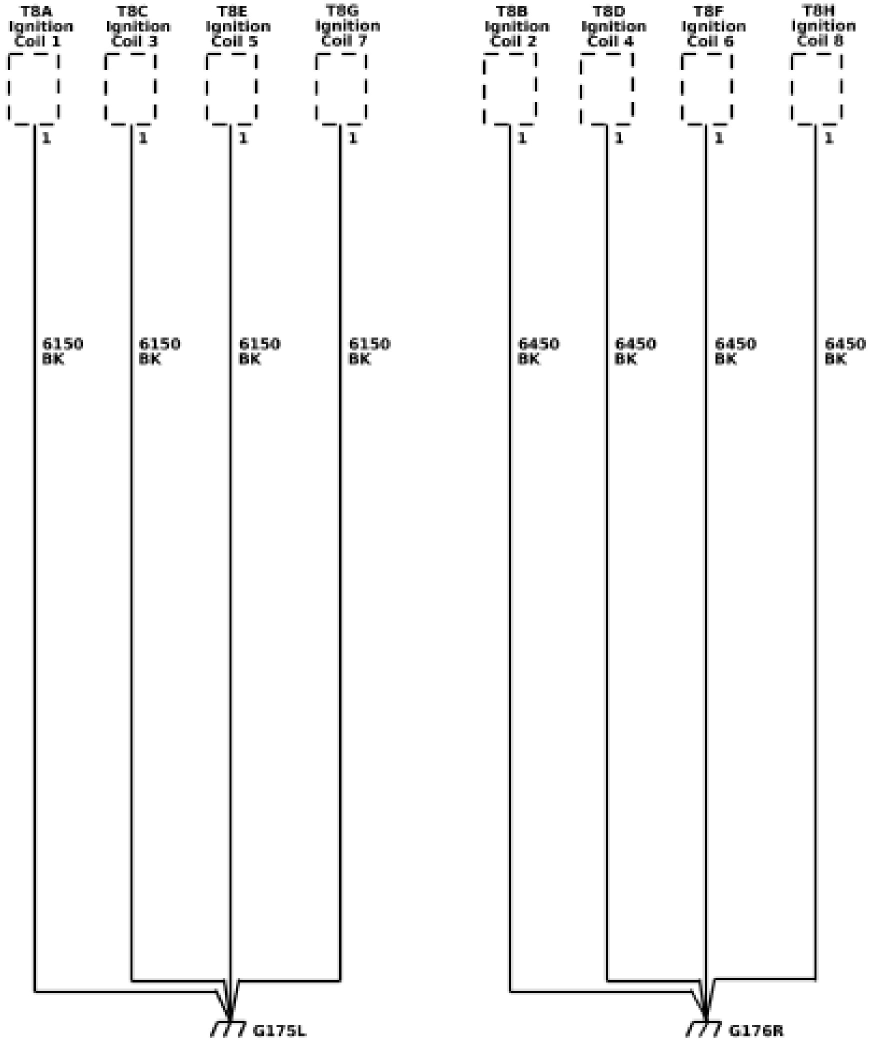

E13LA
Front
Headlamp -
Left
A90
Logic
T4L
X1 1
150
BK
Q5
Brake
Pressure
Modulator
Valve
K17
Electronic
Brake
Control
Module
46
250
BK
B20A
Brake
Fluid
Level
Indicator
Switch
2
150
BK
G24
Windshield
Washer
Pump
2
150
BK
M75
Windshield
Wiper
Motor
5
150
BK
X50A
Engine Wiring Harness
Junction Block
KR12B
Windshield
Wiper
Motor Relay
X1 G5
150
BK
J326
B110
Battery
Monitor
Module
X2 A
550
BK
150
BK
B55
Engine
Compartment
Cover Switch
3
151
BK/WH
B118
Windshield
Washer
Solvent
Container
Level
Sensor
2
151
BK/WH
J300
150
BK
G103A
G105
6150612

Ground Distribution Schematics Object-ID=6152366 (G104)


X50A Engine Wiring Harness Junction Block
KR12B Windshield Wiper Motor Relay
KR11 Windshield Washer Pump Relay
KR41 High Mount Stop Lamp Relay
(L5P) KR200 Engine Controls Sensor Supply Voltage Relay
KR73 Ignition Main Relay
86
(KI4/KI5) KR202 Accessory AC and DC Power Control Module Relay
86
KR53 Parking Lamp Relay
(Z82) KR61 Trailer Backup Lamp Relay
(Z82) KR63L Trailer Stop/Turn Signal Lamp Relay - Left
(Z82) KR63R Trailer Stop/Turn Signal Lamp Relay - Right
KR5 Rear Window Defogger Relay
X1 A4
E29LF Front Fog Lamp - Left
1(-VHU) 2 (VHU)
E29RF Front Fog Lamp - Right
1(-VHU) 2 (VHU)
P13 Horn
1
650 BK
650 BK
650 BK
J132
650 BK
X150 8
650 BK
T3U
E13RA Front Headlamp - Right
A90 Logic
T4L
X1 1
650 BK
650 BK
G104

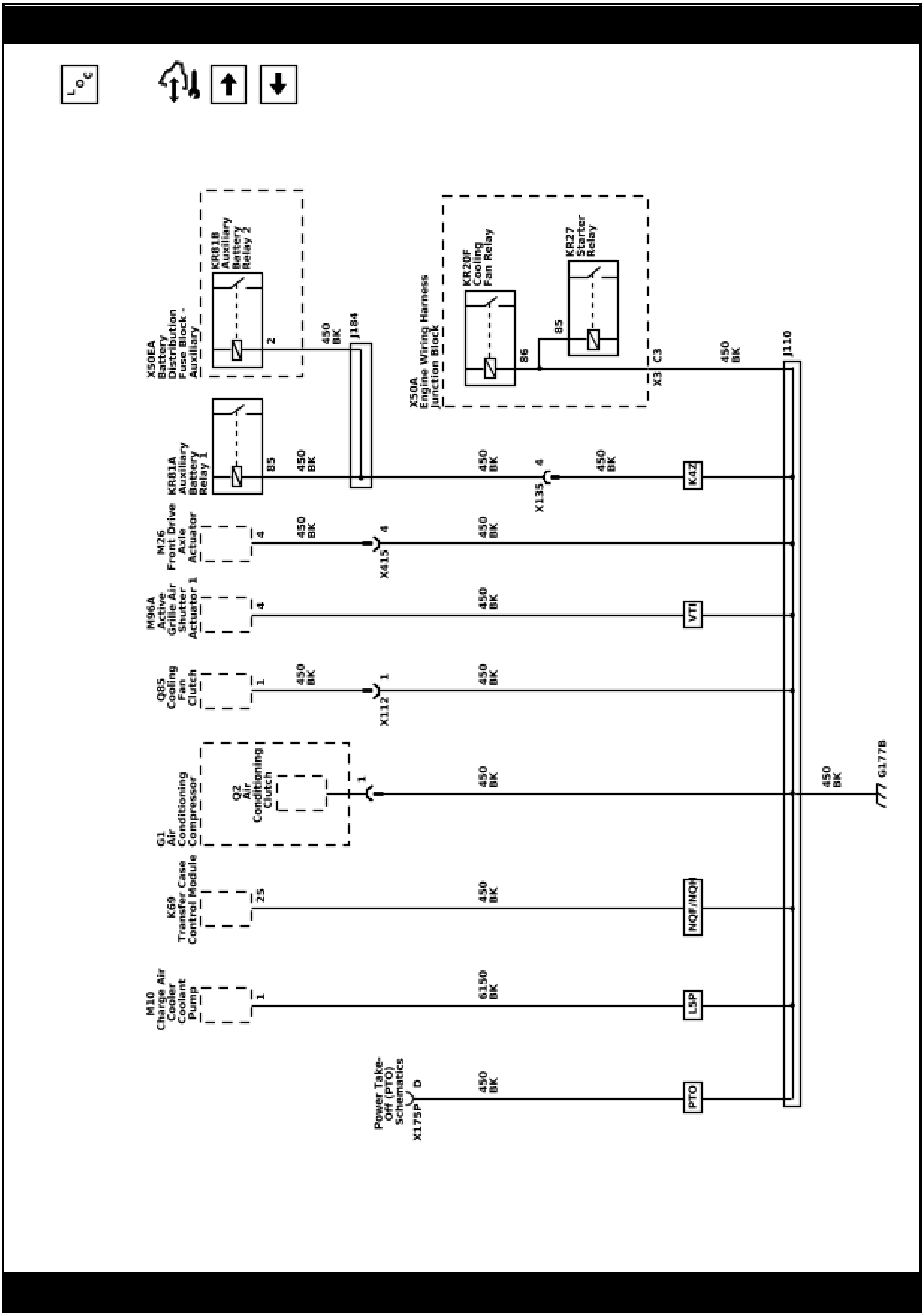
6150613

Ground Distribution Schematics Object-ID=6152366 (G175L and G175R)

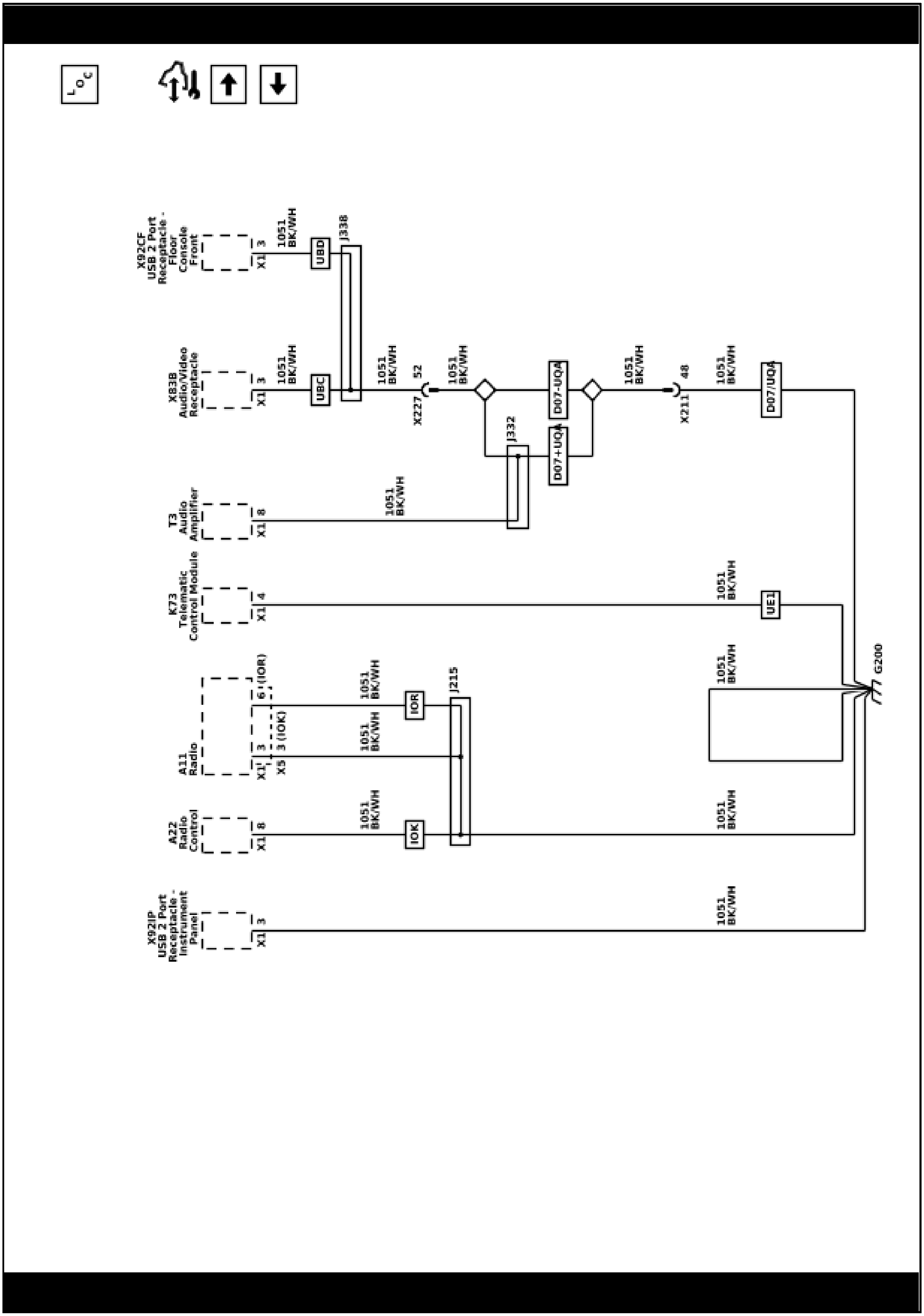

T8A Ignition Coil 1
T8C Ignition Coil 3
T8E Ignition Coil 5
T8G Ignition Coil 7
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
T8H Ignition Coil 8
1
1
1
1
1
1
1
1
6150 BK
6150 BK
6150 BK
6150 BK
6450 BK
6450 BK
6450 BK
6450 BK
G175L
G176R

6150614

Ground Distribution Schematics Object-ID=6152366 (G177B)

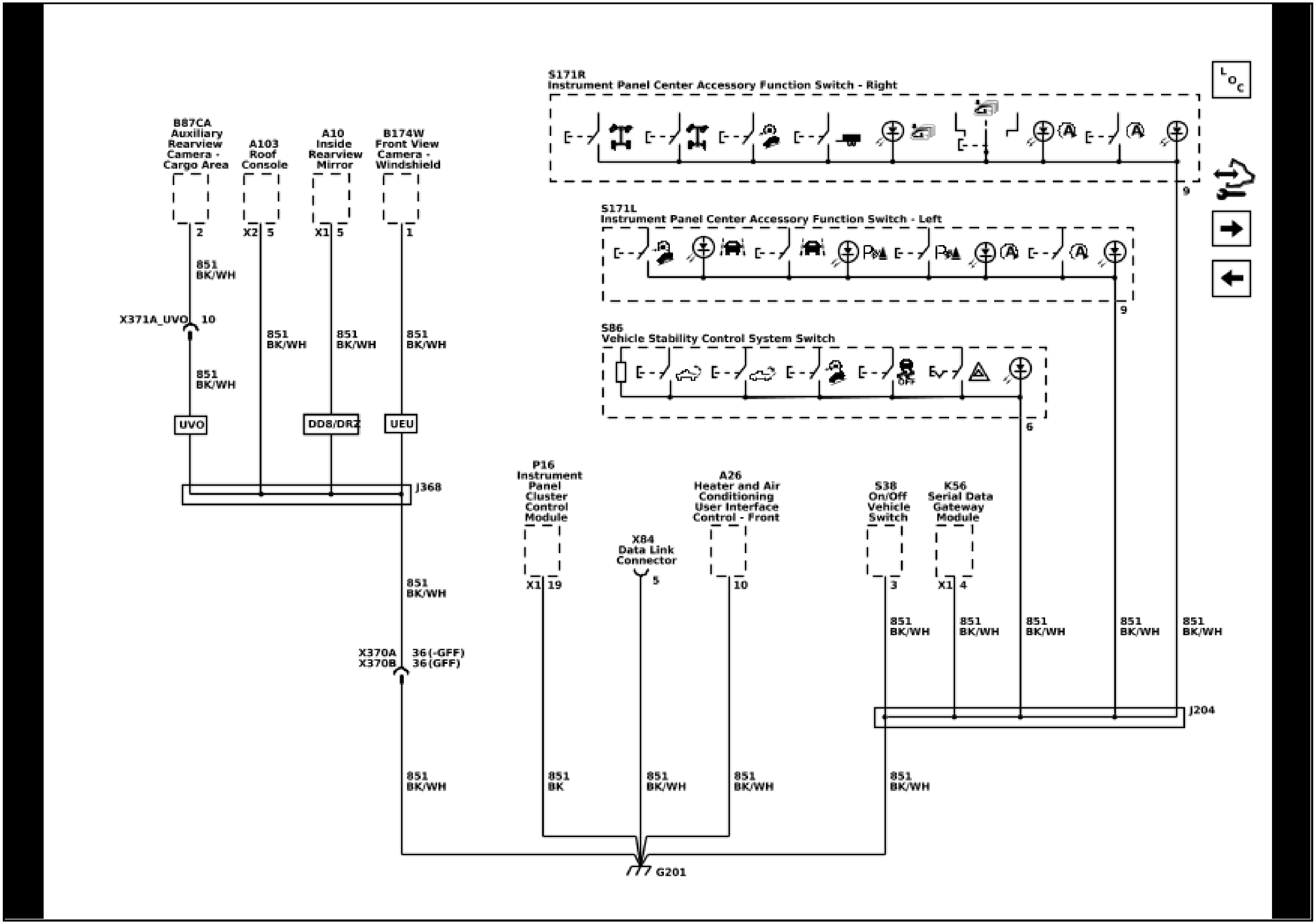

6150615
X50EA Battery Distribution Fuse Block - Auxiliary
KR81B Auxiliary Battery Relay 2
2
450 BK
J184
KR81A Auxiliary Battery Relay 1
85
450 BK
X50A Engine Wiring Harness Junction Block
KR20F Cooling Fan Relay
86
85
KR27 Starter Relay
X3 C3
450 BK
J110
450 BK
X135 4
450 BK
K4Z
M26 Front Drive Axle Actuator
4
450 BK
X415 4
450 BK
M96A Active Grille Air Shutter Actuator 1
4
450 BK
VTI
Q85 Cooling Fan Clutch
1
450 BK
X112 1
450 BK
G1 Air Conditioning Compressor
Q2 Air Conditioning Clutch
1
450 BK
450 BK
G177B
K69 Transfer Case Control Module
25
450 BK
NQF/NQH
M10 Charge Air Cooler Coolant Pump
1
6150 BK
L5P
Power Take-Off (PTO) Schematics
X175P D
450 BK
PTO

Ground Distribution Schematics Object-ID=6152366 (G200)

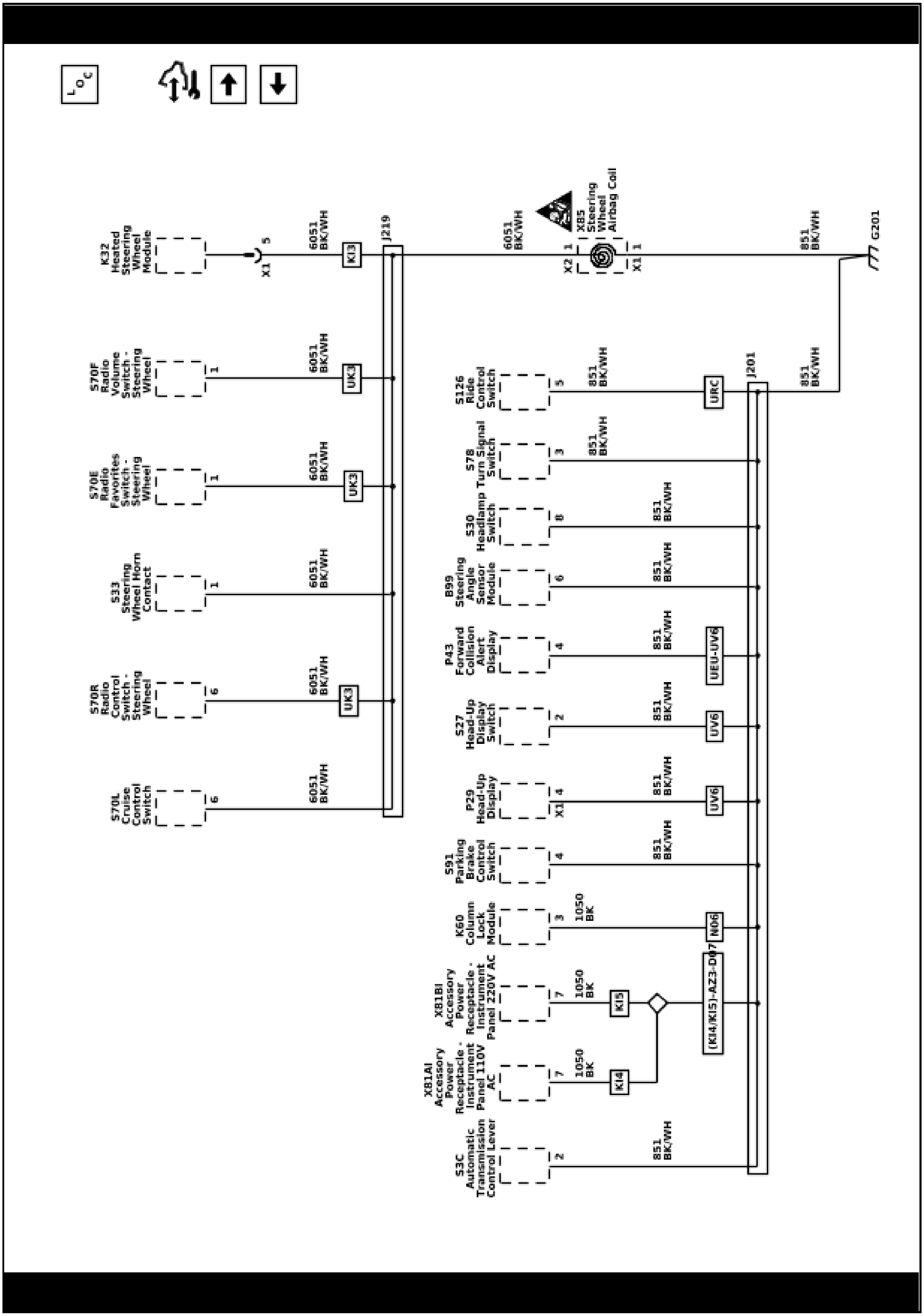

X92CF
USB 2 Port Receptacle - Floor Console Front
X1 3
1051 BK/WH
UBD
J338
X83B Audio/Video Receptacle
X1 3
1051 BK/WH
UBC
1051 BK/WH
X227
52
1051 BK/WH
D07-UQA
D07+UQA
J332
1051 BK/WH
X211
48
1051 BK/WH
D07/UQA
T3 Audio Amplifier
X1 8
1051 BK/WH
K73 Telematic Control Module
X1 4
1051 BK/WH
UE1
A11 Radio
X1 3
X5 3 (IOK)
6 (IOR)
1051 BK/WH
IOR
1051 BK/WH
J215
1051 BK/WH
G200
A22 Radio Control
X1 8
1051 BK/WH
IOK
1051 BK/WH
X92IP USB 2 Port Receptacle - Instrument Panel
X1 3
1051 BK/WH

6150616

Ground Distribution Schematics Object-ID=6152366 (G201 - 1 of 2)

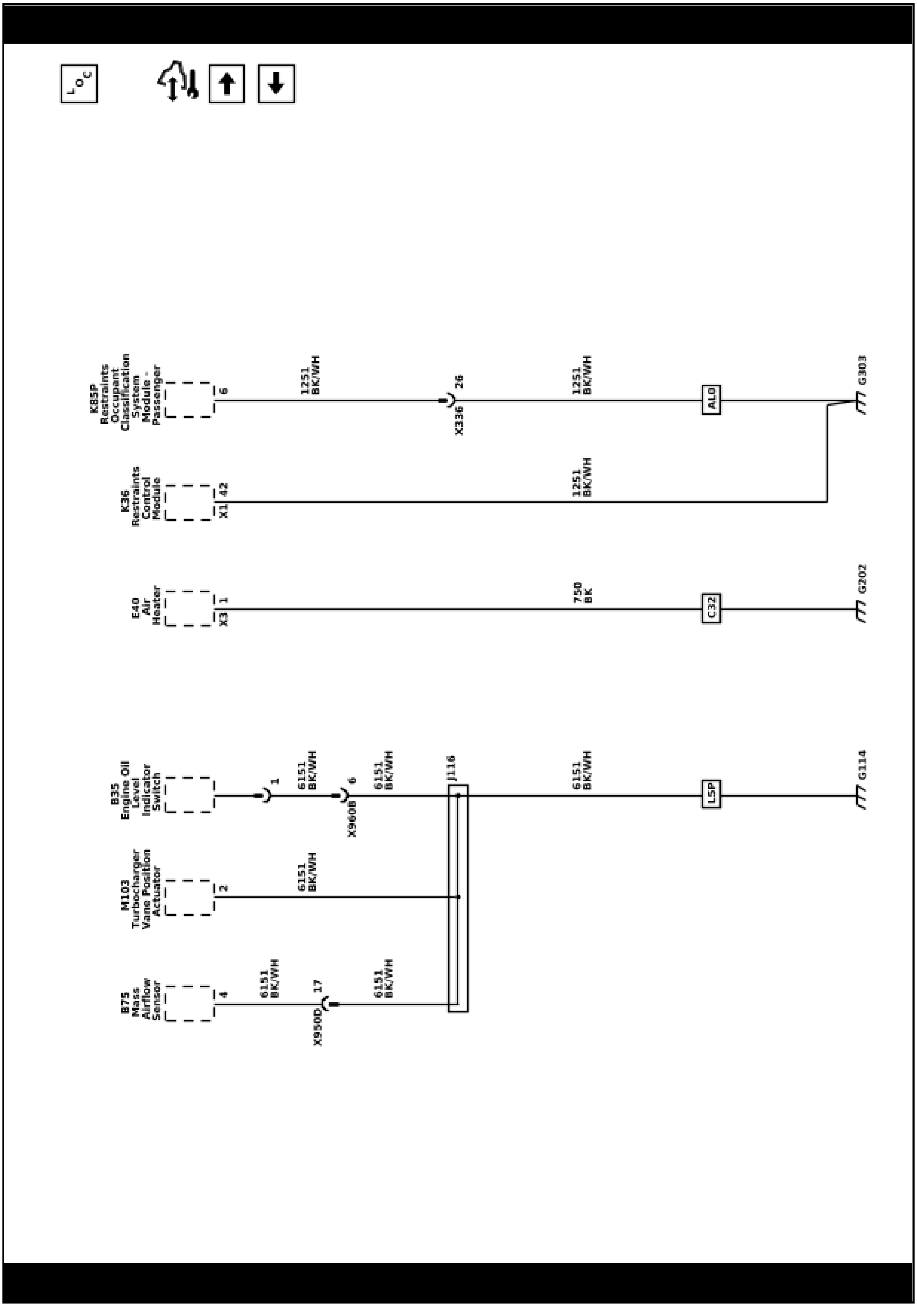

S171R
Instrument Panel Center Accessory Function Switch - Right
9
S171L
Instrument Panel Center Accessory Function Switch - Left
9
S86
Vehicle Stability Control System Switch
OFF
6
B87CA
Auxiliary
Rearview
Camera -
Cargo Area
2
A103
Roof
Console
X2 5
A10
Inside
Rearview
Mirror
X1 5
B174W
Front View
Camera -
Windshield
1
851
BK/WH
X371A_UVO 10
UVO
DD8/DRZ
UEU
J368
X370A 36(-GFF)
X370B 36(GFF)
P16
Instrument
Panel
Cluster
Control
Module
X1 19
851
BK
X84
Data Link
Connector
5
A26
Heater and Air
Conditioning
User Interface
Control - Front
10
S38
On/Off
Vehicle
Switch
3
K56
Serial Data
Gateway
Module
X1 4
J204
G201
6150617

Ground Distribution Schematics Object-ID=6152366 (G201 - 2 of 2)

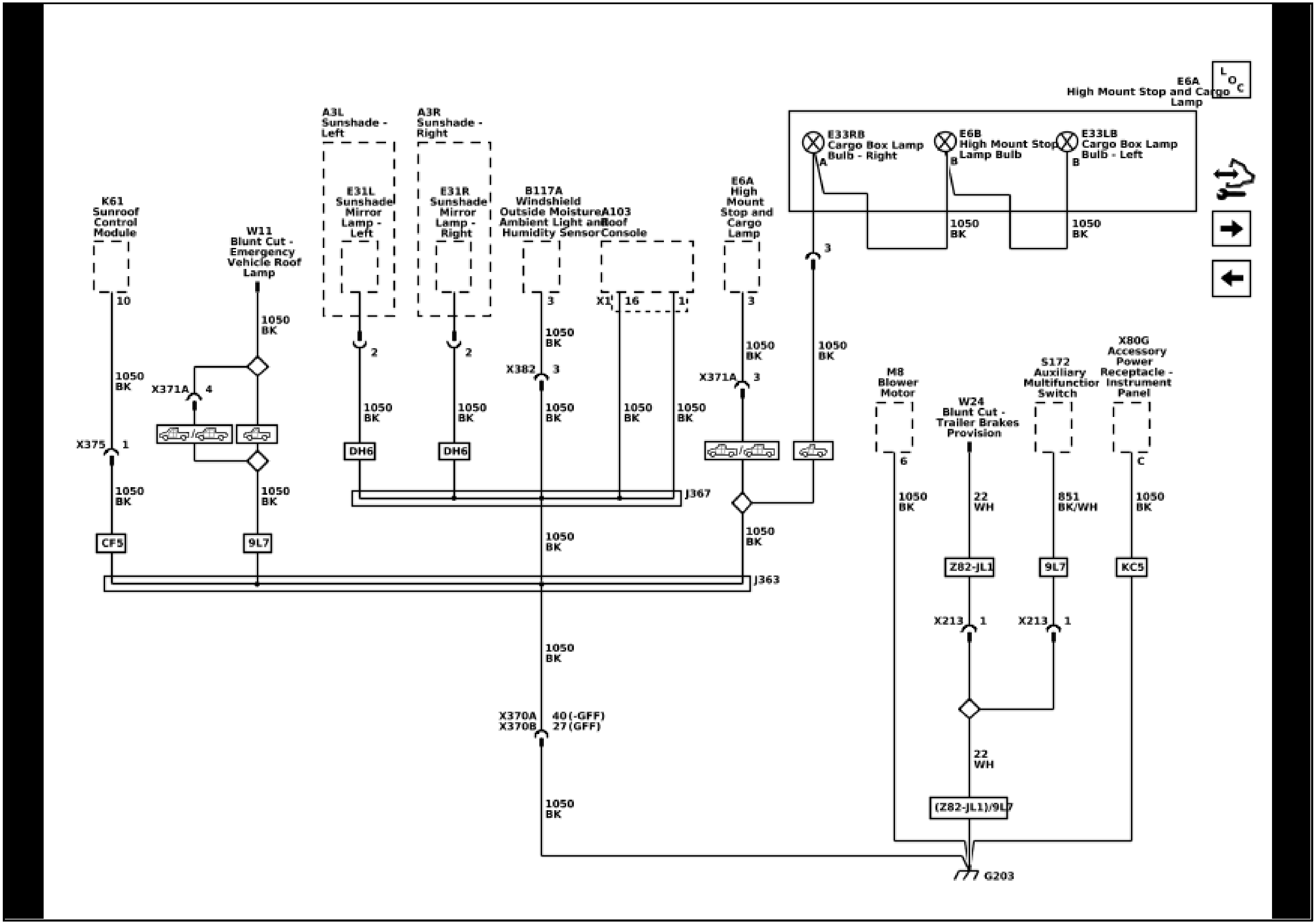

K32 Heated Steering Wheel Module
X1 5
6051 BK/WH
KI3
J219
S70F Radio Volume Switch - Steering Wheel
1
UK3
S70E Radio Favorites Switch - Steering Wheel
S33 Steering Wheel Horn Contact
S70R Radio Control Switch - Steering Wheel
6
S70L Cruise Control Switch
X85 Steering Wheel Airbag Coil
X2 1
X1 1
851 BK/WH
G201
S126 Ride Control Switch
5
URC
J201
S78 Turn Signal Switch
3
S30 Headlamp Switch
8
B99 Steering Angle Sensor Module
P43 Forward Collision Alert Display
4
UEU-UV6
S27 Head-Up Display Switch
2
UV6
P29 Head-Up Display
X1 4
S91 Parking Brake Control Switch
K60 Column Lock Module
1050 BK
N06
X81BI Accessory Power Receptacle - Instrument Panel 220V AC
7
KI5
(KI4/KI5)-AZ3-D07
X81AI Accessory Power Receptacle - Instrument Panel 110V AC
KI4
S3C Automatic Transmission Control Lever

6150618

Ground Distribution Schematics Object-ID=6152366 (G202, G303, and G114)

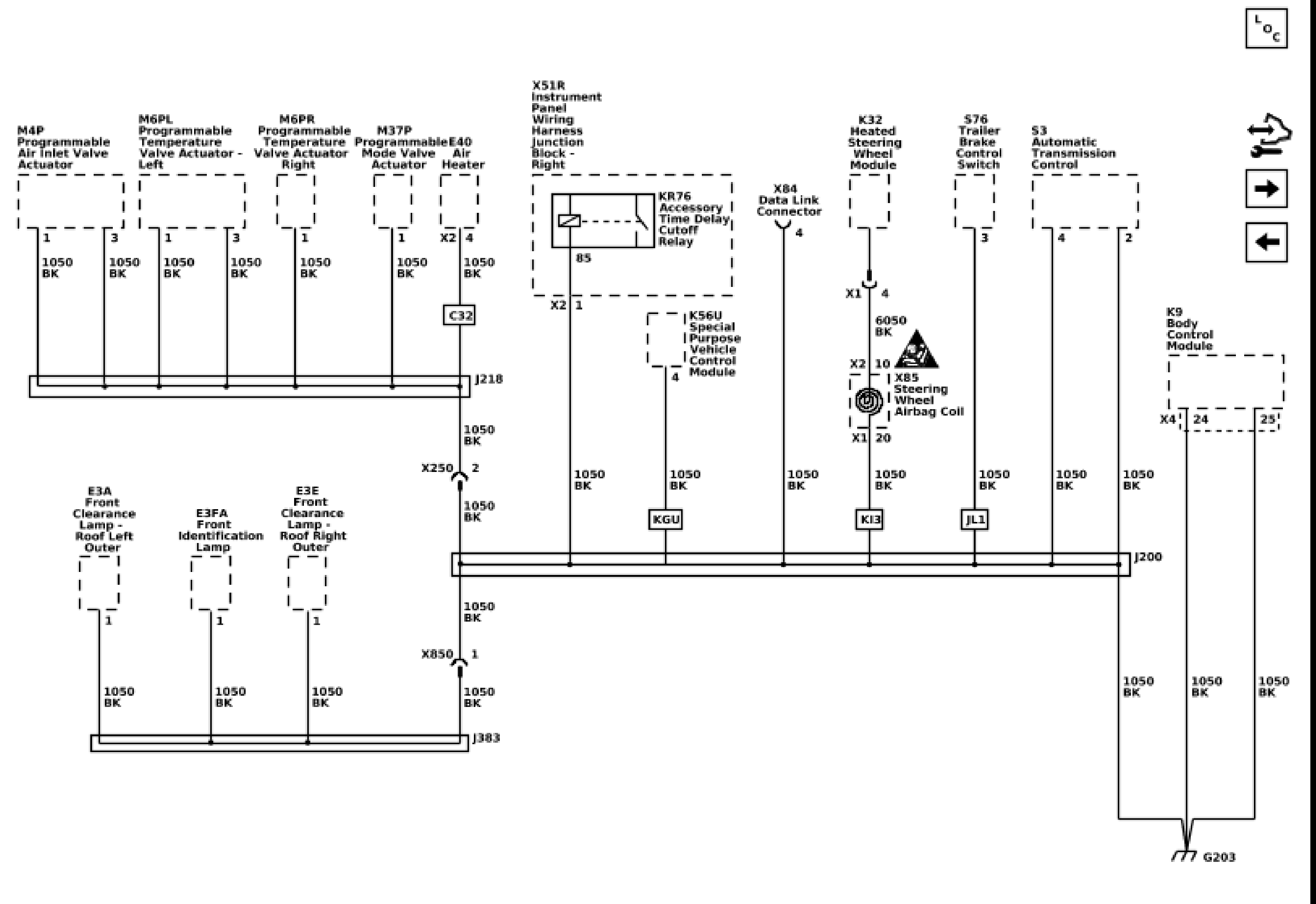

6150619
K85P Restraints Occupant Classification System Module - Passenger
6
1251 BK/WH
X336
26
1251 BK/WH
AL0
G303
K36 Restraints Control Module
X1 42
1251 BK/WH
E40 Air Heater
X3 1
750 BK
C32
G202
B35 Engine Oil Level Indicator Switch
1
6151 BK/WH
X960B
6
6151 BK/WH
J116
6151 BK/WH
L5P
G114
M103 Turbocharger Vane Position Actuator
2
6151 BK/WH
B75 Mass Airflow Sensor
4
6151 BK/WH
X950D
17
6151 BK/WH

Ground Distribution Schematics Object-ID=6152366 (G203 - 1 of 2)


K61
Sunroof
Control
Module
10
1050
BK
X375
1
1050
BK
CF5
W11
Blunt Cut -
Emergency
Vehicle Roof
Lamp
1050
BK
X371A
4
1050
BK
9L7
A3L
Sunshade -
Left
E31L
Sunshade
Mirror
Lamp -
Left
2
1050
BK
DH6
A3R
Sunshade -
Right
E31R
Sunshade
Mirror
Lamp -
Right
2
1050
BK
DH6
B117A
Windshield
Outside Moisture
Ambient Light and
Humidity Sensor
3
1050
BK
X382
3
1050
BK
A103
Roof
Console
X1
16
1
1050
BK
1050
BK
J367
1050
BK
J363
1050
BK
X370A
X370B
40 (-GFF)
27 (GFF)
1050
BK
E6A
High
Mount
Stop and
Cargo
Lamp
3
1050
BK
X371A
3
1050
BK
E6A
High Mount Stop and Cargo
Lamp
E33RB
Cargo Box Lamp
Bulb - Right
A
E6B
High Mount Stop
Lamp Bulb
B
E33LB
Cargo Box Lamp
Bulb - Left
B
1050
BK
1050
BK
3
1050
BK
M8
Blower
Motor
6
1050
BK
W24
Blunt Cut -
Trailer Brakes
Provision
22
WH
Z82-JL1
X213
1
S172
Auxiliary
Multifunction
Switch
851
BK/WH
9L7
X213
1
X80G
Accessory
Power
Receptacle -
Instrument
Panel
C
1050
BK
KC5
22
WH
(Z82-JL1)/9L7
G203
L
O
C

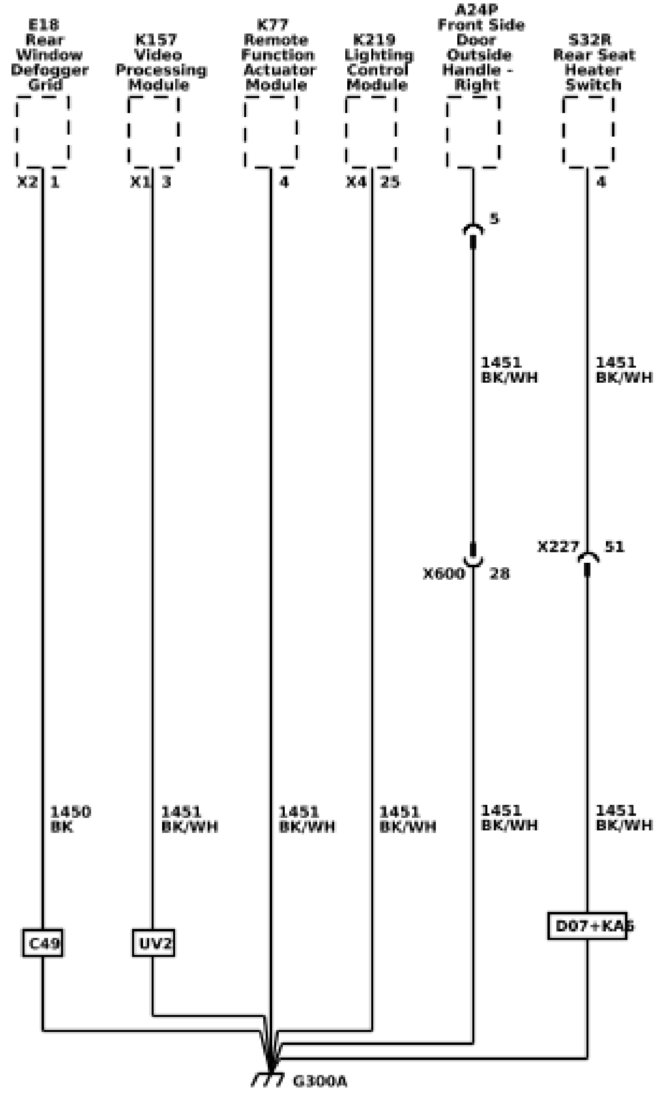
6150620

Ground Distribution Schematics Object-ID=6152366 (G203 - 2 of 2)


M4P Programmable Air Inlet Valve Actuator
M6PL Programmable Temperature Valve Actuator - Left
M6PR Programmable Temperature Valve Actuator Right
M37P Programmable Mode Valve Actuator
E40 Air Heater
X51R Instrument Panel Wiring Harness Junction Block - Right
KR76 Accessory Time Delay Cutoff Relay
85
X2 1
K56U Special Purpose Vehicle Control Module
X84 Data Link Connector
K32 Heated Steering Wheel Module
X1 4
6050 BK
X2 10
X85 Steering Wheel Airbag Coil
X1 20
S76 Trailer Brake Control Switch
S3 Automatic Transmission Control
K9 Body Control Module
X4 24 25
1
3
X2 4
1050 BK
C32
J218
X250 2
KGU
KI3
JL1
J200
X850 1
J383
E3A Front Clearance Lamp - Roof Left Outer
E3FA Front Identification Lamp
E3E Front Clearance Lamp - Roof Right Outer
G203
L O C

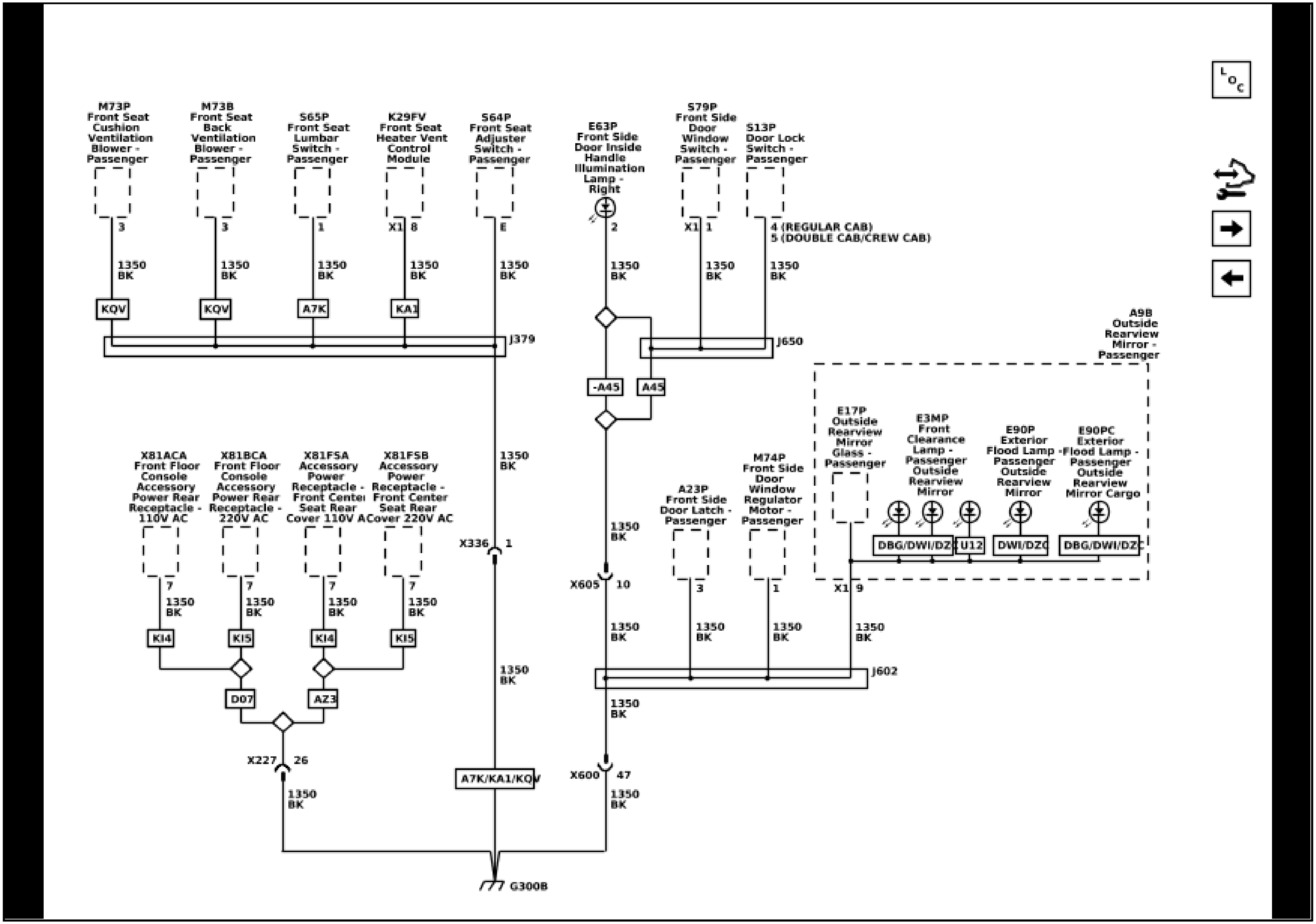
6150621

Ground Distribution Schematics Object-ID=6152366 (G300A)

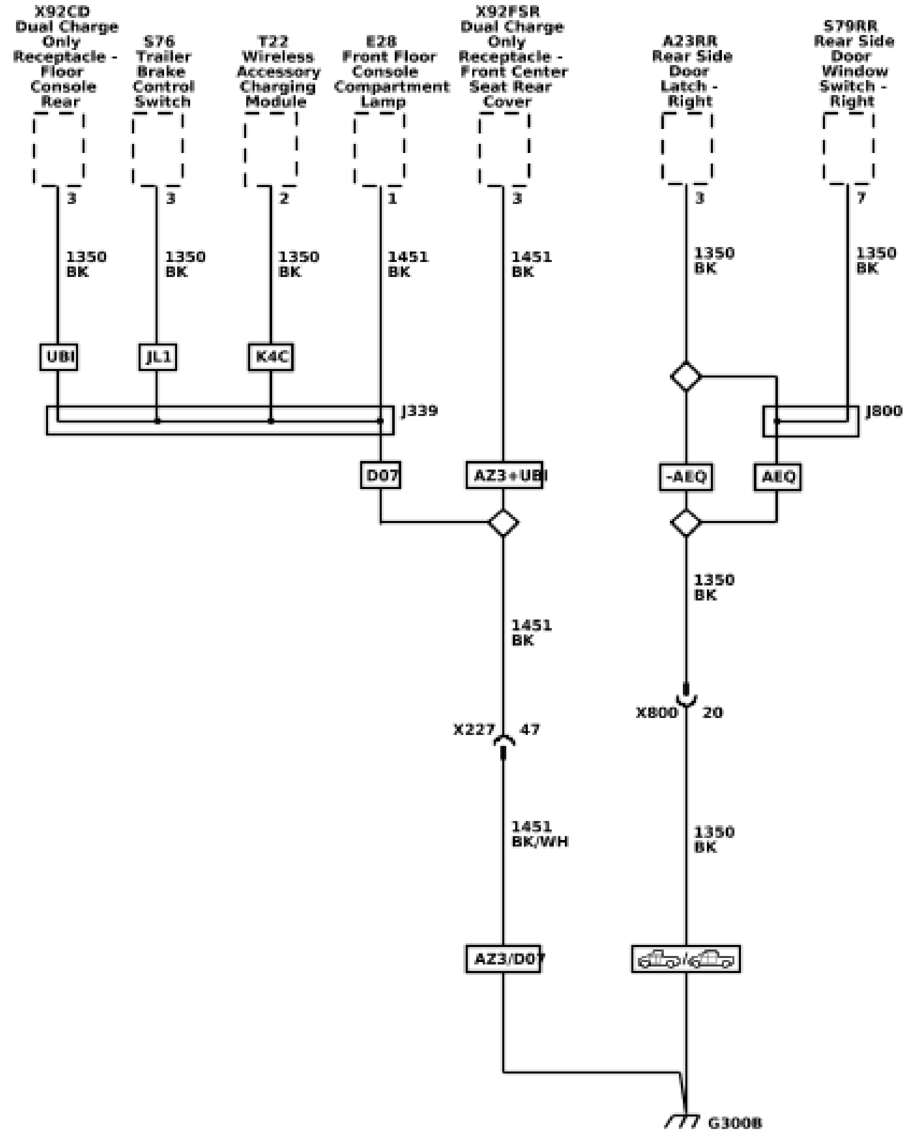

E18 Rear Window Defogger Grid
K157 Video Processing Module
K77 Remote Function Actuator Module
K219 Lighting Control Module
A24P Front Side Door Outside Handle - Right
S32R Rear Seat Heater Switch
X2 1
X1 3
4
X4 25
5
4
1451 BK/WH
1451 BK/WH
X600 28
X227 51
1450 BK
1451 BK/WH
1451 BK/WH
1451 BK/WH
1451 BK/WH
1451 BK/WH
C49
UV2
D07+KA6
G300A

6150622

Ground Distribution Schematics Object-ID=6152366 (G300B - 1 of 2)

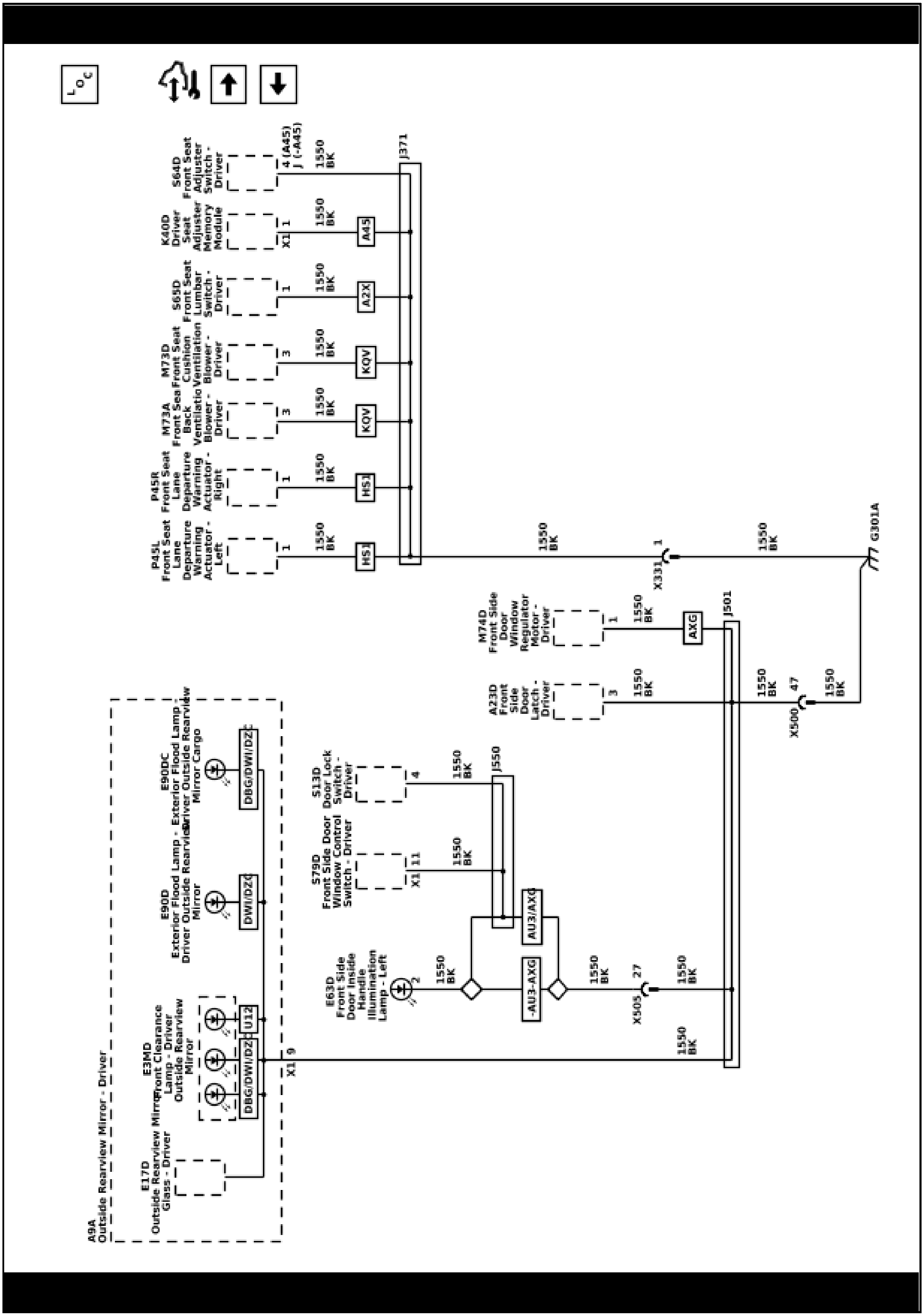

M73P Front Seat Cushion Ventilation Blower - Passenger
M73B Front Seat Back Ventilation Blower - Passenger
S65P Front Seat Lumbar Switch - Passenger
K29FV Front Seat Heater Vent Control Module
S64P Front Seat Adjuster Switch - Passenger
E63P Front Side Door Inside Handle Illumination Lamp - Right
S79P Front Side Door Window Switch - Passenger
S13P Door Lock Switch - Passenger
3
3
1
X1 8
E
2
X1 1
4 (REGULAR CAB)
5 (DOUBLE CAB/CREW CAB)
1350 BK
KQV
KQV
A7K
KA1
J379
J650
-A45
A45
A9B Outside Rearview Mirror - Passenger
E17P Outside Rearview Mirror Glass - Passenger
E3MP Front Clearance Lamp - Passenger Outside Rearview Mirror
E90P Exterior Flood Lamp - Passenger Outside Rearview Mirror
E90PC Exterior Flood Lamp - Passenger Outside Rearview Mirror Cargo
DBG/DWI/DZC
U12
DWI/DZC
DBG/DWI/DZC
X1 9
A23P Front Side Door Latch - Passenger
M74P Front Side Door Window Regulator Motor - Passenger
3
1
J602
X81ACA Front Floor Console Accessory Power Rear Receptacle - 110V AC
X81BCA Front Floor Console Accessory Power Rear Receptacle - 220V AC
X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC
X81FSB Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC
7
7
7
7
KI4
KI5
KI4
KI5
D07
AZ3
X227 26
X336 1
X605 10
X600 47
A7K/KA1/KQV
G300B
6150623

Ground Distribution Schematics Object-ID=6152366 (G300B - 2 of 2)

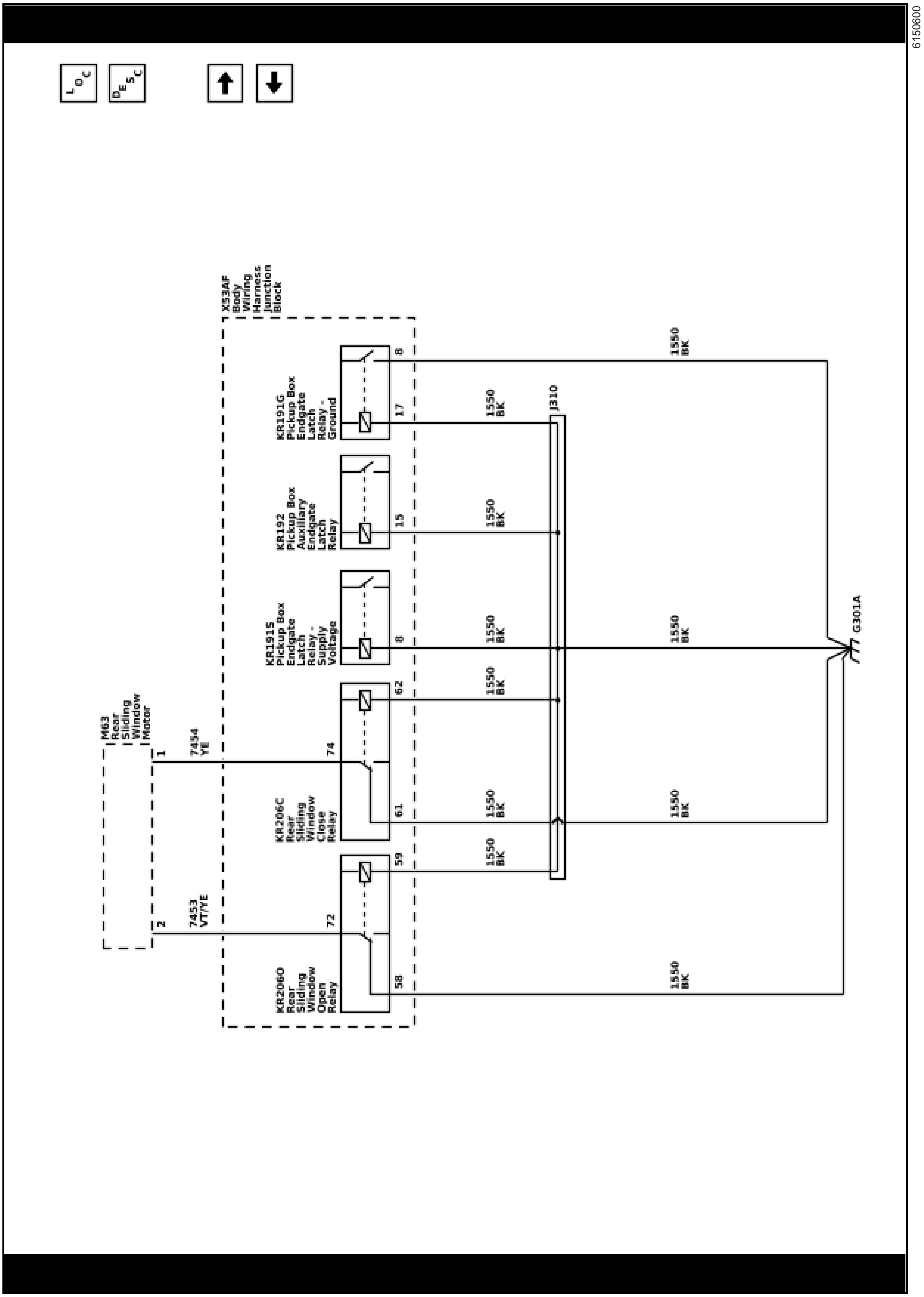

X92CD Dual Charge Only Receptacle - Floor Console Rear
S76 Trailer Brake Control Switch
T22 Wireless Accessory Charging Module
E28 Front Floor Console Compartment Lamp
X92FSR Dual Charge Only Receptacle - Front Center Seat Rear Cover
A23RR Rear Side Door Latch - Right
S79RR Rear Side Door Window Switch - Right
3
3
2
1
3
3
7
1350 BK
1350 BK
1350 BK
1451 BK
1451 BK
1350 BK
1350 BK
UBI
JL1
K4C
J339
J800
D07
AZ3+UBI
-AEQ
AEQ
1451 BK
1350 BK
X227
47
X800
20
1451 BK/WH
1350 BK
AZ3/D07
G300B

6150624

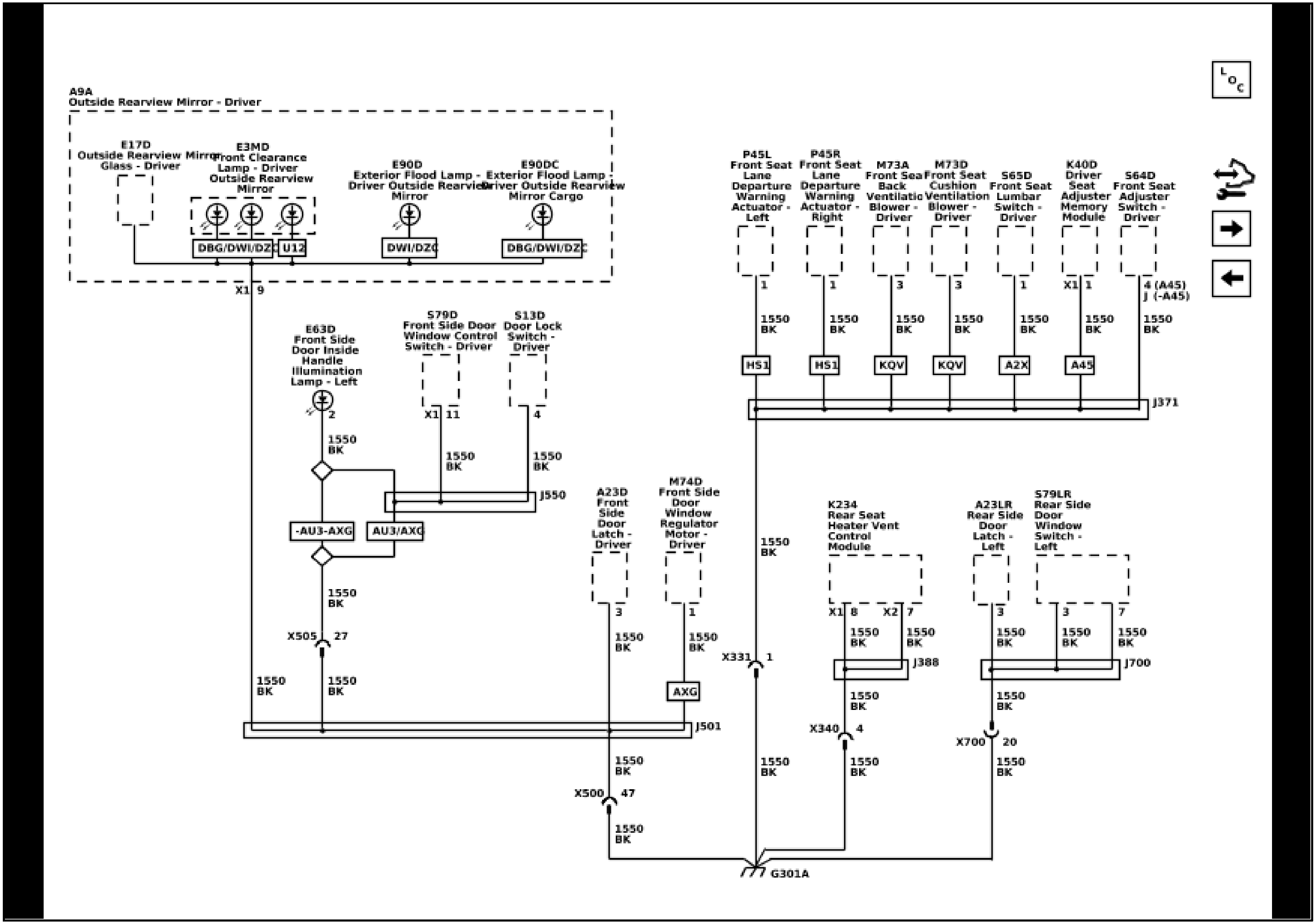
Ground Distribution Schematics Object-ID=6152366 (G301A - Regular Cab - 1 of 2)


6150625
S64D Front Seat Adjuster Switch - Driver
4 (A45)
J (-A45)
K40D Driver Seat Adjuster Memory Module
X1 1
S65D Front Seat Lumbar Switch - Driver
M73D Front Seat Cushion Ventilation Blower - Driver
M73A Front Seat Back Ventilation Blower - Driver
P45R Front Seat Lane Departure Warning Actuator - Right
P45L Front Seat Lane Departure Warning Actuator - Left
1550 BK
A45
A2X
KQV
HS1
J371
X331 1
G301A
M74D Front Side Door Window Regulator Motor - Driver
A23D Front Side Door Latch - Driver
AXG
J501
X500 47
S13D Door Lock Switch - Driver
S79D Front Side Door Window Control Switch - Driver
X1 11
4
J550
AU3/AXG
-AU3-AXG
E63D Front Side Door Inside Handle Illumination Lamp - Left
2
X505 27
A9A Outside Rearview Mirror - Driver
E17D Outside Rearview Mirror Glass - Driver
E3MD Front Clearance Lamp - Driver Outside Rearview Mirror
DBG/DWI/DZ
U12
X1 9
E90D Exterior Flood Lamp - Exterior Flood Lamp - Driver Outside Rearview Mirror
DWI/DZG
E90DC Exterior Flood Lamp - Driver Outside Rearview Mirror Cargo
DBG/DWI/DZ

Ground Distribution Schematics Object-ID=6152366 (G301A - Regular Cab - 2 of 2)

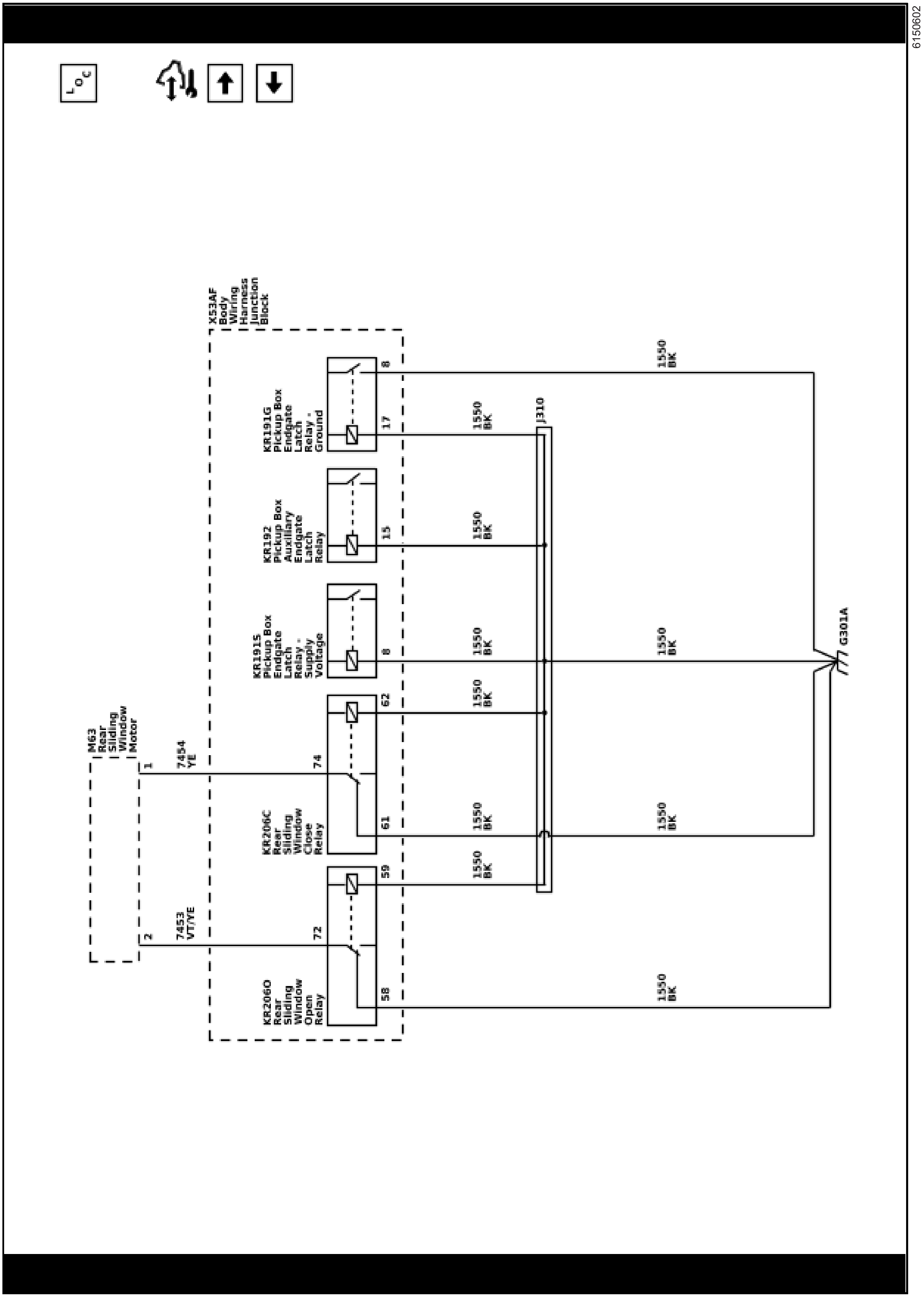

6150600
LOC
DESC
M63 Rear Sliding Window Motor
1
2
7454 YE
7453 VT/YE
X53AF Body Wiring Harness Junction Block
KR206O Rear Sliding Window Open Relay
KR206C Rear Sliding Window Close Relay
KR191S Pickup Box Endgate Latch Relay - Supply Voltage
KR192 Pickup Box Auxiliary Endgate Latch Relay
KR191G Pickup Box Endgate Latch Relay - Ground
72
58
59
74
61
62
8
15
17
8
1550 BK
J310
G301A

Ground Distribution Schematics Object-ID=6152366 (G301A - Double Cab/Crew Cab - 1 of 2)

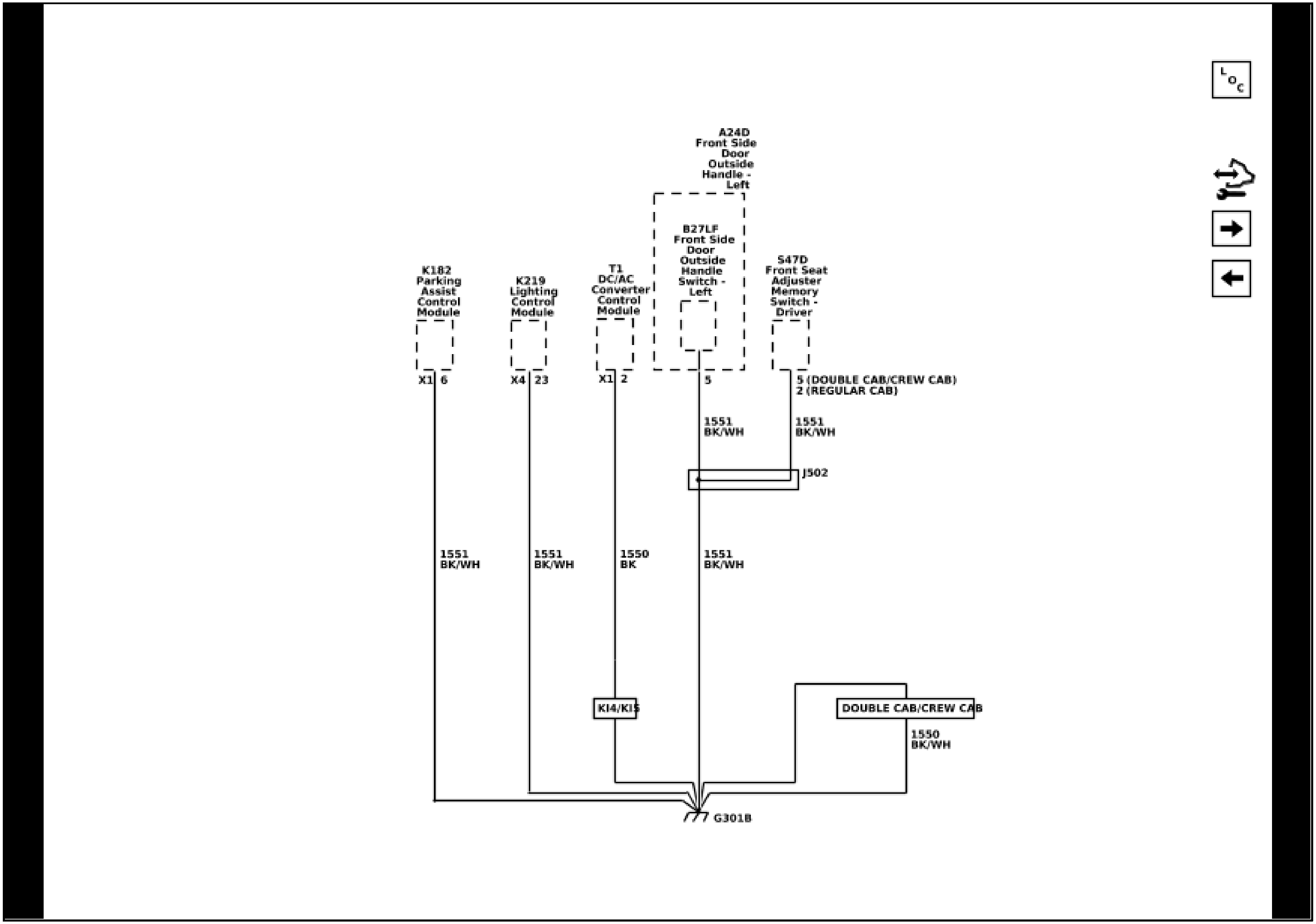

A9A
Outside Rearview Mirror - Driver
E17D
Outside Rearview Mirror Glass - Driver
E3MD
Front Clearance Lamp - Driver Outside Rearview Mirror
E90D
Exterior Flood Lamp - Driver Outside Rearview Mirror
E90DC
Exterior Flood Lamp - Driver Outside Rearview Mirror Cargo
DBG/DWI/DZC
U12
DWI/DZC
DBG/DWI/DZC
X1 9
E63D
Front Side Door Inside Handle Illumination Lamp - Left
2
S79D
Front Side Door Window Control Switch - Driver
X1 11
S13D
Door Lock Switch - Driver
4
1550 BK
J550
-AU3-AXG
AU3/AXG
X505 27
A23D
Front Side Door Latch - Driver
3
M74D
Front Side Door Window Regulator Motor - Driver
1
AXG
J501
X500 47
P45L
Front Seat Lane Departure Warning Actuator - Left
P45R
Front Seat Lane Departure Warning Actuator - Right
M73A
Front Seat Back Ventilation Blower - Driver
M73D
Front Seat Cushion Ventilation Blower - Driver
S65D
Front Seat Lumbar Switch - Driver
K40D
Driver Seat Adjuster Memory Module
S64D
Front Seat Adjuster Switch - Driver
1
1
3
3
1
X1 1
4 (A45)
J (-A45)
HS1
HS1
KQV
KQV
A2X
A45
J371
X331 1
K234
Rear Seat Heater Vent Control Module
X1 8
X2 7
J388
X340 4
A23LR
Rear Side Door Latch - Left
3
S79LR
Rear Side Door Window Switch - Left
3
7
J700
X700 20
G301A

6150601

Ground Distribution Schematics Object-ID=6152366 (G301A - Double Cab/Crew Cab - 2 of 2)

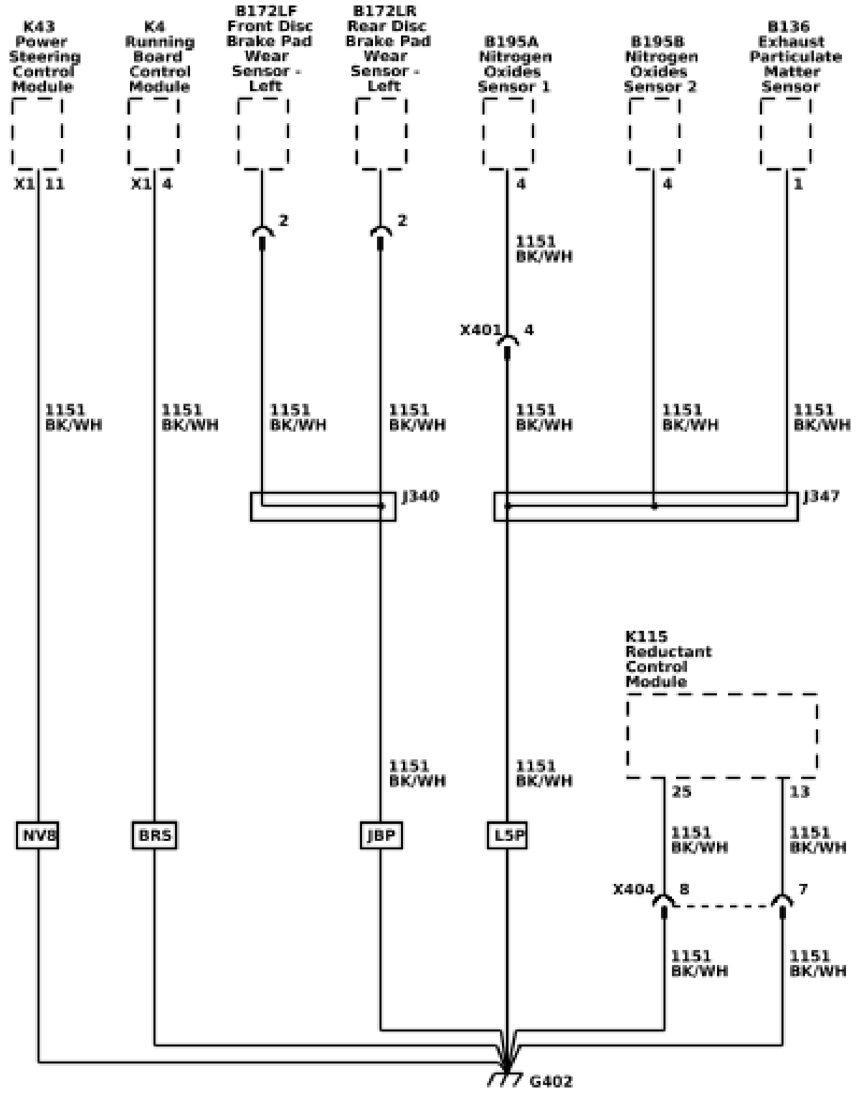

6150602
M63 Rear Sliding Window Motor
1
2
7454 YE
7453 VT/YE
X53AF Body Wiring Harness Junction Block
KR191G Pickup Box Endgate Latch Relay - Ground
KR192 Pickup Box Auxiliary Endgate Latch Relay
KR191S Pickup Box Endgate Latch Relay - Supply Voltage
KR206C Rear Sliding Window Close Relay
KR206O Rear Sliding Window Open Relay
8
17
15
8
62
74
61
59
72
58
1550 BK
J310
G301A

Ground Distribution Schematics Object-ID=6152366 (G301B)


A24D Front Side Door Outside Handle - Left
B27LF Front Side Door Outside Handle Switch - Left
K182 Parking Assist Control Module
K219 Lighting Control Module
T1 DC/AC Converter Control Module
S47D Front Seat Adjuster Memory Switch - Driver
X1 6
X4 23
X1 2
5
5 (DOUBLE CAB/CREW CAB)
2 (REGULAR CAB)
1551 BK/WH
1551 BK/WH
J502
1551 BK/WH
1551 BK/WH
1550 BK
1551 BK/WH
KI4/KI5
DOUBLE CAB/CREW CAB
1550 BK/WH
G301B

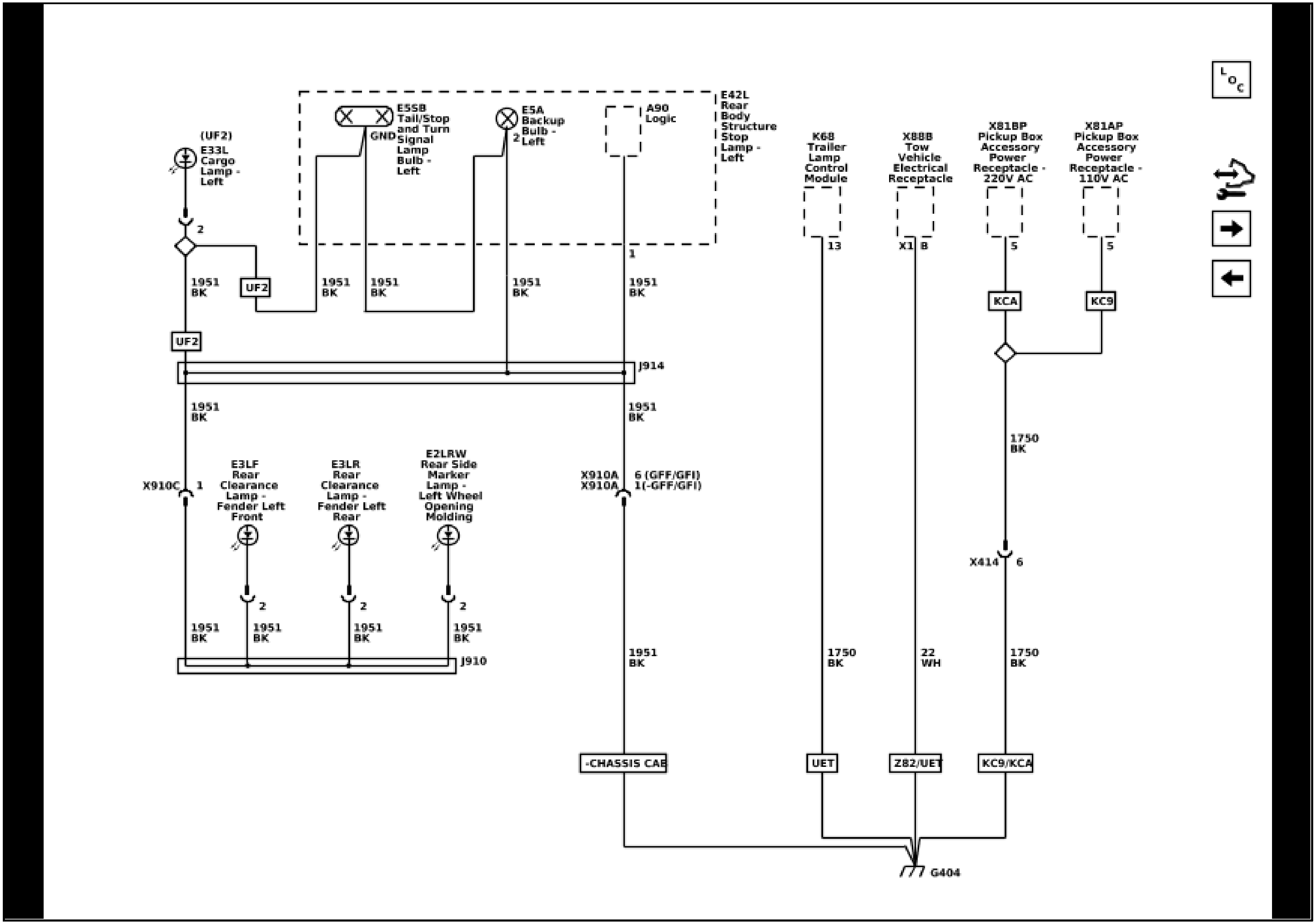
6150603

Ground Distribution Schematics Object-ID=6152366 (G402)

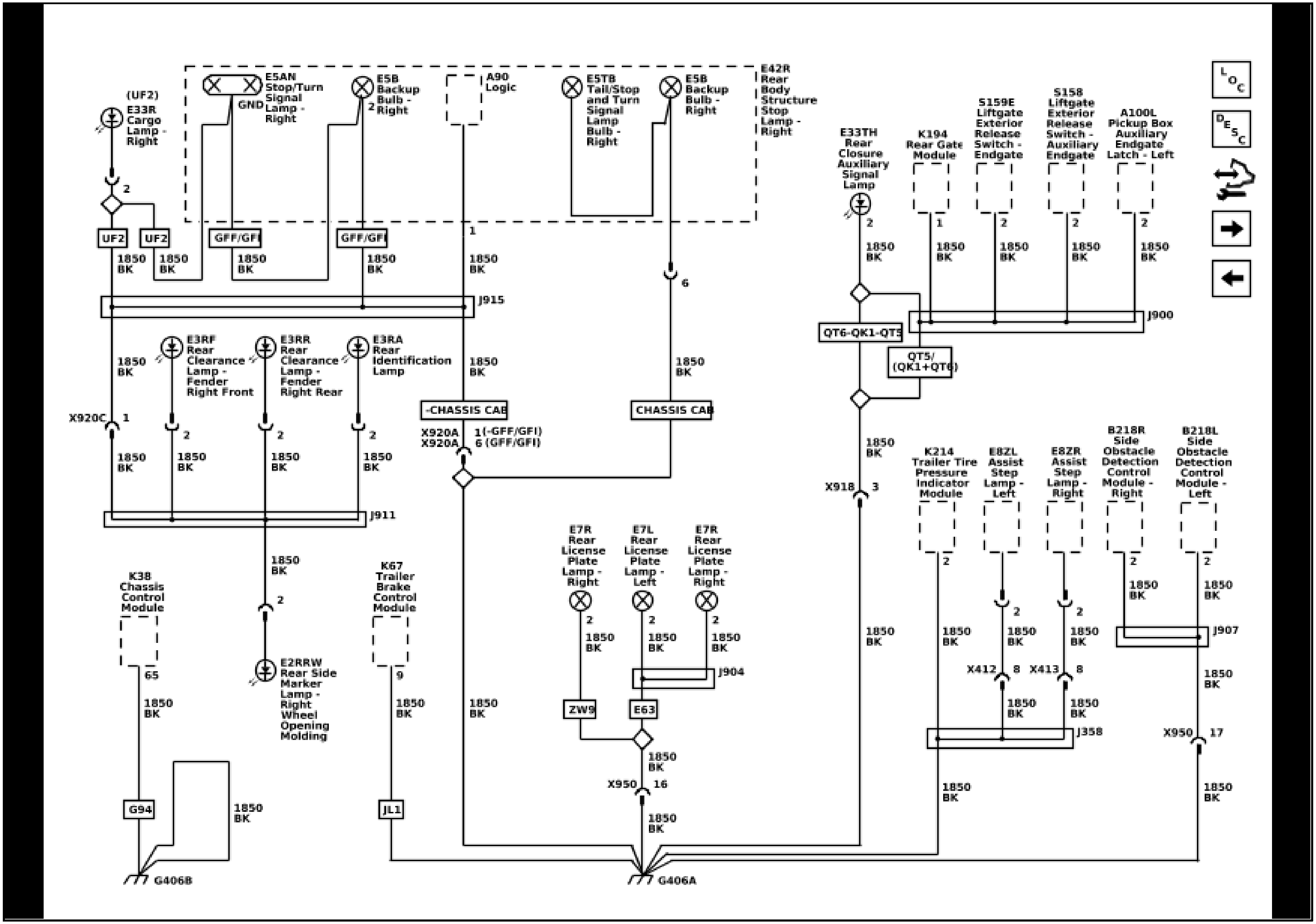

K43 Power Steering Control Module
X1 11
1151 BK/WH
NV8
K4 Running Board Control Module
X1 4
1151 BK/WH
BR5
B172LF Front Disc Brake Pad Wear Sensor - Left
2
1151 BK/WH
B172LR Rear Disc Brake Pad Wear Sensor - Left
2
1151 BK/WH
J340
1151 BK/WH
JBP
B195A Nitrogen Oxides Sensor 1
4
1151 BK/WH
X401 4
1151 BK/WH
1151 BK/WH
L5P
B195B Nitrogen Oxides Sensor 2
4
1151 BK/WH
B136 Exhaust Particulate Matter Sensor
1
1151 BK/WH
J347
K115 Reductant Control Module
25
13
1151 BK/WH
1151 BK/WH
X404 8
7
1151 BK/WH
1151 BK/WH
G402

6150604

Ground Distribution Schematics Object-ID=6152366 (G404)

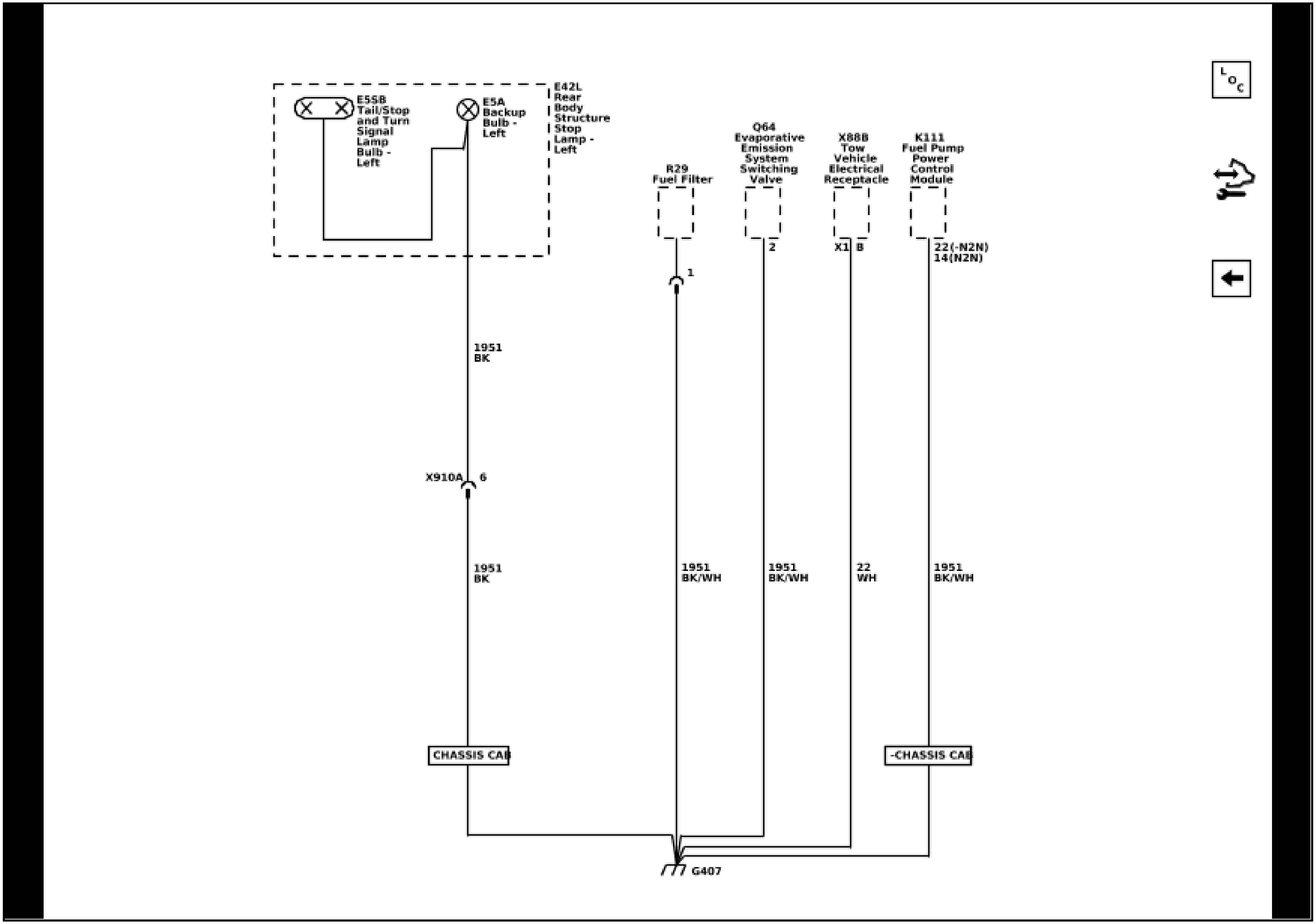

E42L Rear Body Structure Stop Lamp - Left
(UF2) E33L Cargo Lamp - Left
E55B Tail/Stop and Turn Signal Lamp Bulb - Left
GND
E5A Backup Bulb - Left
2
A90 Logic
1
K68 Trailer Lamp Control Module
13
X88B Tow Vehicle Electrical Receptacle
X1 B
X81BP Pickup Box Accessory Power Receptacle - 220V AC
5
X81AP Pickup Box Accessory Power Receptacle - 110V AC
5
KCA
KC9
UF2
1951 BK
J914
J910
X910C 1
X910A 6 (GFF/GFI)
X910A 1(-GFF/GFI)
E3LF Rear Clearance Lamp - Fender Left Front
E3LR Rear Clearance Lamp - Fender Left Rear
E2LRW Rear Side Marker Lamp - Left Wheel Opening Molding
2
1750 BK
X414 6
22 WH
-CHASSIS CAB
UET
Z82/UET
KC9/KCA
G404
6150605

Ground Distribution Schematics Object-ID=6152366 (G406A and G406B)


(UF2)
E33R Cargo Lamp - Right
E5AN Stop/Turn Signal Lamp - Right
GND
E5B Backup Bulb - Right
A90 Logic
E5TB Tail/Stop and Turn Signal Lamp Bulb - Right
E5B Backup Bulb - Right
E42R Rear Body Structure Stop Lamp - Right
E33TH Rear Closure Auxiliary Signal Lamp
K194 Rear Gate Module
S159E Liftgate Exterior Release Switch - Endgate
S158 Liftgate Exterior Release Switch - Auxiliary Endgate
A100L Pickup Box Auxiliary Endgate Latch - Left
UF2
UF2
GFF/GFI
GFF/GFI
1850 BK
J915
J900
QT6-QK1-QT5
QT5/ (QK1+QT6)
E3RF Rear Clearance Lamp - Fender Right Front
E3RR Rear Clearance Lamp - Fender Right Rear
E3RA Rear Identification Lamp
-CHASSIS CAB
CHASSIS CAB
X920C
X920A
X920A
1 (-GFF/GFI)
6 (GFF/GFI)
X918
K214 Trailer Tire Pressure Indicator Module
E8ZL Assist Step Lamp - Left
E8ZR Assist Step Lamp - Right
B218R Side Obstacle Detection Control Module - Right
B218L Side Obstacle Detection Control Module - Left
J911
E7R Rear License Plate Lamp - Right
E7L Rear License Plate Lamp - Left
E7R Rear License Plate Lamp - Right
J904
J907
K38 Chassis Control Module
E2RRW Rear Side Marker Lamp - Right Wheel Opening Molding
K67 Trailer Brake Control Module
X412
X413
J358
ZW9
E63
X950
X950
G94
JL1
G406B
G406A
1
2
3
6
8
9
16
17
65
L O C
D E S C

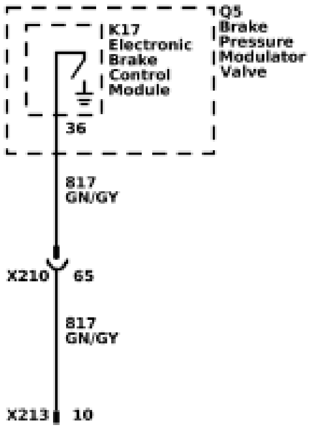
6150606

Ground Distribution Schematics Object-ID=6152366 (G407)


E55B Tail/Stop and Turn Signal Lamp Bulb - Left
E5A Backup Bulb - Left
E42L Rear Body Structure Stop Lamp - Left
R29 Fuel Filter
Q64 Evaporative Emission System Switching Valve
X88B Tow Vehicle Electrical Receptacle
K111 Fuel Pump Power Control Module
1
2
X1 B
22(-N2N)
14(N2N)
1951
BK
X910A 6
1951
BK
1951
BK/WH
1951
BK/WH
22
WH
1951
BK/WH
CHASSIS CAB
-CHASSIS CAB
G407

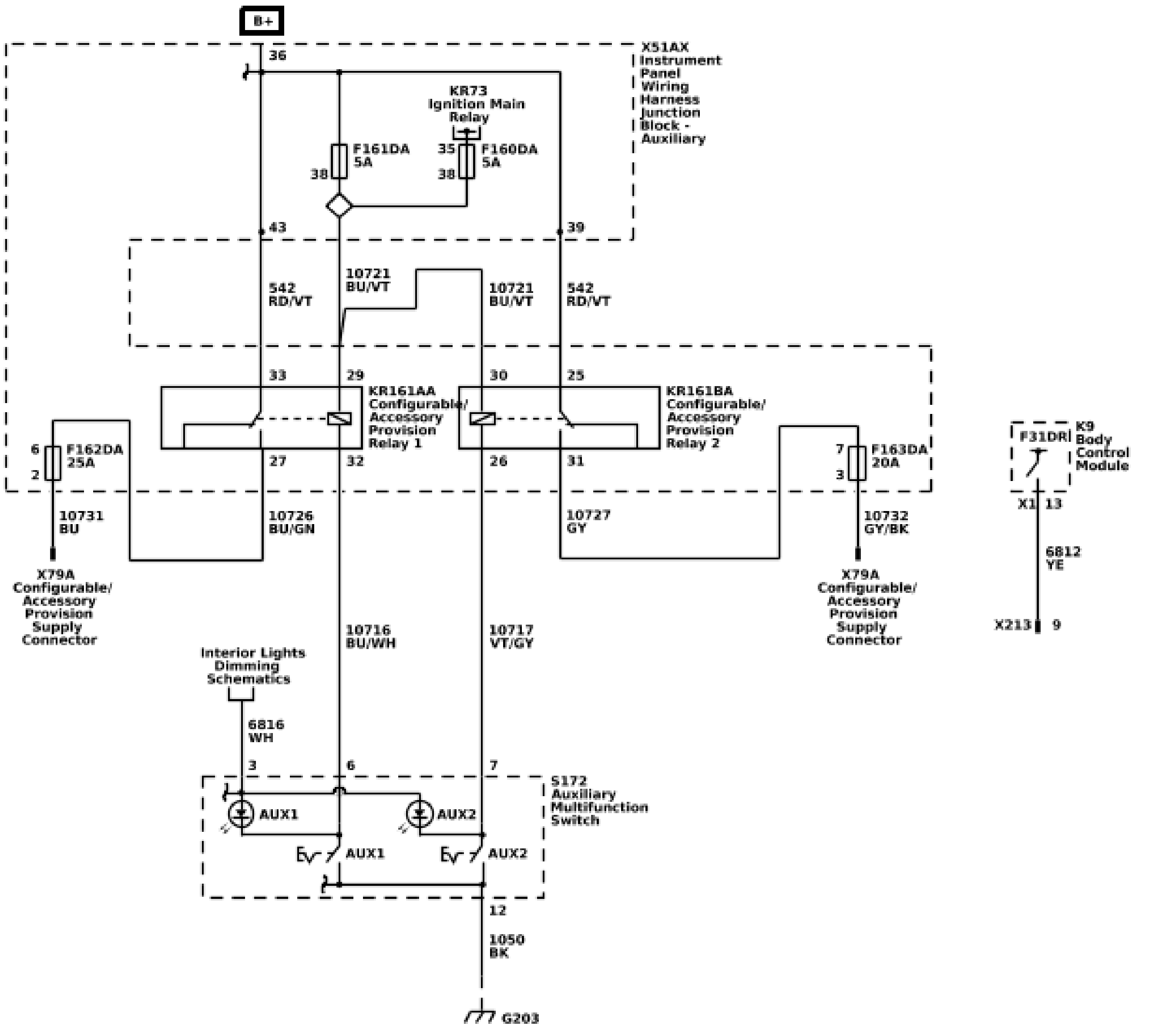
6150607

Upfitter Provision Schematics Object-ID=6152402 (Upfitter Provisions - Signals)


Q5
Brake
Pressure
Modulator
Valve
K17
Electronic
Brake
Control
Module
36
817
GN/GY
X210
65
817
GN/GY
X213
10

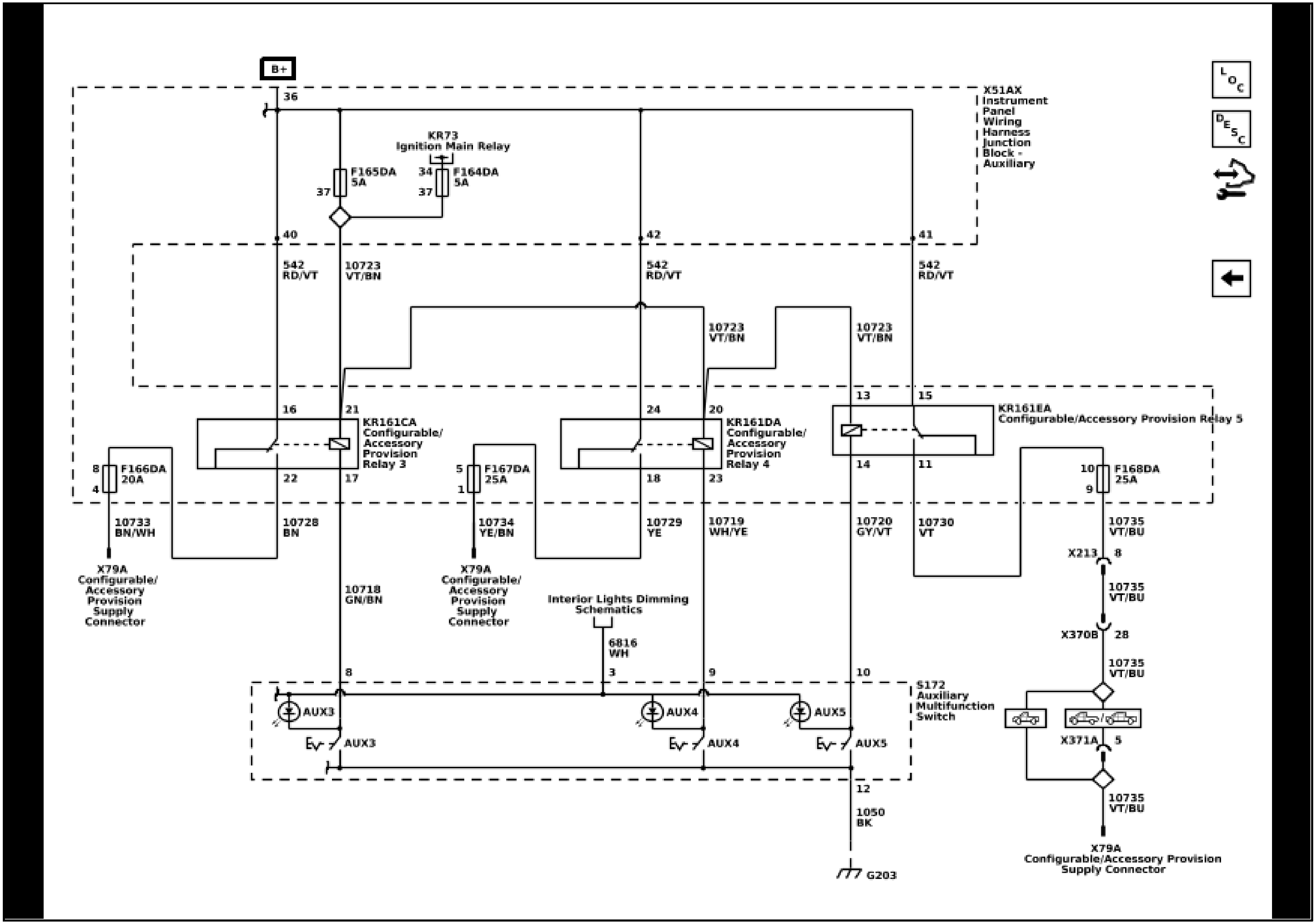
6150626

Upfitter Provision Schematics Object-ID=6152402 (Upfitter Provisions - 1 of 2 (9L7))


B+
36
X51AX Instrument Panel Wiring Harness Junction Block - Auxiliary
KR73 Ignition Main Relay
F161DA 5A
38
35
F160DA 5A
38
43
39
542 RD/VT
10721 BU/VT
10721 BU/VT
542 RD/VT
33
29
30
25
KR161AA Configurable/ Accessory Provision Relay 1
KR161BA Configurable/ Accessory Provision Relay 2
6
2
F162DA 25A
27
32
26
31
7
3
F163DA 20A
F31DR
K9 Body Control Module
X1
13
10731 BU
10726 BU/GN
10727 GY
10732 GY/BK
6812 YE
X79A Configurable/ Accessory Provision Supply Connector
X79A Configurable/ Accessory Provision Supply Connector
X213
9
10716 BU/WH
10717 VT/GY
Interior Lights Dimming Schematics
6816 WH
3
6
7
S172 Auxiliary Multifunction Switch
AUX1
AUX2
AUX1
AUX2
12
1050 BK
G203

6150627

Upfitter Provision Schematics Object-ID=6152402 (Upfitter Provisions - 2 of 2 (9L7))


B+
36
X51AX Instrument Panel Wiring Harness Junction Block - Auxiliary
KR73 Ignition Main Relay
F165DA 5A
37
34
F164DA 5A
37
40
42
41
542 RD/VT
10723 VT/BN
542 RD/VT
10723 VT/BN
10723 VT/BN
542 RD/VT
16
21
KR161CA Configurable/ Accessory Provision Relay 3
24
20
KR161DA Configurable/ Accessory Provision Relay 4
13
15
KR161EA Configurable/Accessory Provision Relay 5
14
11
8
4
F166DA 20A
22
17
5
1
F167DA 25A
18
23
10
9
F168DA 25A
10733 BN/WH
10728 BN
10734 YE/BN
10729 YE
10719 WH/YE
10720 GY/VT
10730 VT
10735 VT/BU
X79A Configurable/ Accessory Provision Supply Connector
X79A Configurable/ Accessory Provision Supply Connector
X213
8
10735 VT/BU
10718 GN/BN
Interior Lights Dimming Schematics
6816 WH
X370B
28
10735 VT/BU
8
3
9
10
S172 Auxiliary Multifunction Switch
AUX3
AUX4
AUX5
AUX3
AUX4
AUX5
X371A
5
12
1050 BK
10735 VT/BU
X79A Configurable/Accessory Provision Supply Connector
G203
6150628

Component Locator

Object-ID=6273927 Owner=Owner, Schematics LMD=07-Apr-2023 LMB=Kalb, William

Master Electrical Component List

Code	Name	Option	Location	Locator View	Connector End View
A3L	Sunshade - Left	—	In the passenger compartment, at the front of the headliner, left side	—	—
A3R	Sunshade - Right	—	In the passenger compartment, at the front of the headliner, right side	—	—
A7	Fuel Tank Fuel Pump Module	—	Under the vehicle, mounted in the front fuel tank	• *Fuel Tank Components (L8T)* • *Underbody Components*	• *A7 Fuel Tank Fuel Pump Module (N2L)* • *A7 Fuel Tank Fuel Pump Module (N2M)* • *A7 Fuel Tank Fuel Pump Module (N2N)*
A7AX	Fuel Tank Fuel Pump Module - Auxiliary	—	under the vehicle, mounted in the rear fuel tank	—	• *A7AX Fuel Tank Fuel Pump Module - Auxiliary (L5P)* • *A7AX Fuel Tank Fuel Pump Module - Auxiliary (L8T)*
A9A	Outside Rearview Mirror - Driver	—	Outside the vehicle, at the front of the driver door	*Front of Vehicle Components*	• *A9A Outside Rearview Mirror - Driver X1* • *A9A Outside Rearview Mirror - Driver X2*
A9B	Outside Rearview Mirror - Passenger	—	Outside the vehicle, at the front of the passenger door	*Front of Vehicle Components*	• *A9B Outside Rearview Mirror - Passenger X1* • *A9B Outside Rearview Mirror - Passenger X2*
A10	Inside Rearview Mirror	—	In the passenger compartment, at the top center of the windshield	—	• *A10 Inside Rearview Mirror X1* • *A10 Inside Rearview Mirror X2 (DRZ)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
A11	Radio	—	In the passenger compartment, right front, below passenger a-pillar, between the instrument panel and bulkhead	• *Instrument Panel - Rear* • *Instrument Panel - Right*	• *A11 Radio X1 (IOR)* • *A11 Radio X2 (IOK)* • *A11 Radio X2 (IOR)* • *A11 Radio X3 (IOK)* • *A11 Radio X3 (IOR)* • *A11 Radio X4 (IOR)* • *A11 Radio X5 (IOK)* • *A11 Radio X5 (IOR)* • *A11 Radio X6 (IOK)* • *A11 Radio X7 (IOK)* • *A11 Radio X7 (IOR)* • *A11 Radio X8 (IOK)* • *A11 Radio X8 (IOR)* • *A11 Radio X9 (IOK)* • *A11 Radio X10 (IOK)* • *A11 Radio X11 (IOK)*
A16	Transfer Case Four Wheel Drive Actuator	NP0 / NQH	Under the vehicle, mounted to the rear of the transfer case	*Transfer Case Components*	• *A16 Transfer Case Four Wheel Drive Actuator (L5P&NQF)* • *A16 Transfer Case Four Wheel Drive Actuator (L5P&NQH)* • *A16 Transfer Case Four Wheel Drive Actuator (L8T&NQF)* • *A16 Transfer Case Four Wheel Drive Actuator (L8T&NQH)*
A22	Radio Control	IOK	In the passenger compartment, at the center of the Instrument Panel, part of the Info Display Module	*Instrument Panel - Front*	• *A22 Radio Control X1 (IOK)* • *A22 Radio Control X2 (IOK)*
A23D	Front Side Door Latch - Driver	—	In the driver door, at the rear center	*Driver Door Components*	*A23D Front Side Door Latch - Driver*
A23LR	Rear Side Door Latch - Left	Double Cab / Crew Cab	In the left rear door, at the rear center	—	*A23LR Rear Side Door Latch - Left*
A23P	Front Side Door Latch - Passenger	—	In the passenger door, at the rear center	*Passenger Door Components*	*A23P Front Side Door Latch - Passenger*
A23RR	Rear Side Door Latch - Right	Double Cab / Crew Cab	In the right rear door, at the rear center	—	*A23RR Rear Side Door Latch - Right*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
A24D	Front Side Door Outside Handle - Left	—	Outside of the vehicle, at the rear of the driver door	*Driver Door Components*	*A24D Front Side Door Outside Handle - Left*
A24P	Front Side Door Outside Handle - Right	—	Outside of the vehicle, at the rear of the passenger door	*Passenger Door Components*	*A24P Front Side Door Outside Handle - Right*
A26	Heater and Air Conditioning User Interface Control - Front	—	In the passenger compartment, at the center of the instrument panel, beneath P17 Info Display Module	*Instrument Panel - Front*	*A26 Heater and Air Conditioning User Interface Control - Front*
A38	Reductant Tank Fluid Supply Pump Module	L5P	Under the vehicle, right side, rearward of engine compartment bulkhead, mounted in the bottom of the reductant tank	—	*A38 Reductant Tank Fluid Supply Pump Module (L5P)*
A99L	Pickup Box Endgate Latch - Left	QK2 & QT5	At the rear of the vehicle, within endgate, on the left side	—	*A99L Pickup Box Endgate Latch - Left (QK2)*
A99R	Pickup Box Endgate Latch - Right	QK2 & QT5	At the rear of the vehicle, within endgate, on the right side	—	*A99R Pickup Box Endgate Latch - Right (QK2)*
A100L	Pickup Box Auxiliary Endgate Latch - Left	QK2	At the rear of the vehicle, within endgate, on the left side	—	*A100L Pickup Box Auxiliary Endgate Latch - Left (QK2)*
A100R	Pickup Box Auxiliary Endgate Latch - Right	QK2	At the rear of the vehicle, within endgate, on the right side	—	*A100R Pickup Box Auxiliary Endgate Latch - Right (QK2)*
A103	Roof Console	—	In the passenger compartment, front center, mounted to the front center of the headliner	—	• *A103 Roof Console X1* • *A103 Roof Console X2*
B1	Air Conditioning Refrigerant Pressure Sensor	—	(L8T) In the engine compartment, left front, mounted to A/C high pressure line, near G1 A/C Compressor	—	• *B1 Air Conditioning Refrigerant Pressure Sensor (L5P)* • *B1 Air Conditioning Refrigerant Pressure Sensor (L8T)*
B5LF	Front Wheel Speed Sensor - Left	—	Outside the vehicle, part of the left front wheel hub assembly	*Front Brake and Suspension Components*	*B5LF Front Wheel Speed Sensor - Left*
B5LR	Rear Wheel Speed Sensor - Left	—	Outside the vehicle, mounted to the outboard end of the left axle tube	*Rear Brake and Suspension Components*	*B5LR Rear Wheel Speed Sensor - Left*
B5RF	Front Wheel Speed Sensor - Right	—	Outside the vehicle, part of the right front wheel hub assembly	*Front Brake and Suspension Components*	• *B5RF Front Wheel Speed Sensor - Right (L5P)* • *B5RF Front Wheel Speed Sensor - Right (L8T)*
B5RR	Rear Wheel Speed Sensor - Right	—	Outside the vehicle, mounted to the outboard end of the right axle tube	*Rear Brake and Suspension Components*	*B5RR Rear Wheel Speed Sensor - Right*
B9	Ambient Air Temperature Sensor	—	Outside of the vehicle, at the bottom of A9B Outside Rearview Mirror - Passenger	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
B10D	Sun Load and Ambient Light and Security Indicator Sensor	—	In the passenger compartment, front center, in instrument panel, mounted to the instrument panel extension	Instrument Panel - Front	B10D Sun Load and Ambient Light and Security Indicator Sensor
B12P	Automatic Transmission Fluid Pressure Sensor - Power Take-Off	—	In the engine compartment, mounted to sid of transmission	—	B12P Automatic Transmission Fluid Pressure Sensor - Power Take-Off (L5P)
B13	Automatic Transmission Fluid Temperature Sensor	—	Under the vehicle, inside the T12 Automatic Transmission	—	B13 Automatic Transmission Fluid Temperature Sensor (MGM / MGU / MKM)
B14A	Automatic Transmission Output Speed Sensor	—	Under the vehicle, inside the T12 Automatic Transmission	—	B14A Automatic Transmission Output Speed Sensor (MGM / MGU / MKM)
B14C	Automatic Transmission Input Speed Sensor	—	Under the vehicle, inside the T12 Automatic Transmission	—	B14C Automatic Transmission Input Speed Sensor (MGM / MGU / MKM)
B14DA	Automatic Transmission Intermediate Speed Sensor 1	—	Under the vehicle, inside the T12 Automatic Transmission	—	B14DA Transmission Intermediate Speed Sensor 1 (MGM / MGU / MKM)
B14DB	Automatic Transmission Intermediate Speed Sensor 2	—	Under the vehicle, inside the T12 Automatic Transmission	—	B14DB Automatic Transmission Intermediate Speed Sensor 2 (MGM / MGU / MKM)
B20A	Brake Fluid Level Indicator Switch	—	In the engine compartment, left rear, mounted in the brake fluid reservoir	Engine Compartment Components - Top (1of2)	B20A Brake Fluid Level Indicator Switch
B22	Brake Pedal Position Sensor	—	In the passenger compartment, in the driver side foot well, under the instrument panel	Instrument Panel - Front	B22 Brake Pedal Position Sensor
B23	Camshaft Position Sensor	L8T / L5P	• L8T) In the engine compartment, front center, mounted to timing chain cover, above crankshaft harmonic balancer • (L5P) In the engine compartment, rear center, mounted to the right rear side of the engine block, above transmission bellhousing	Engine Components - Right Front (L5P)	B23 Camshaft Position Sensor (L5P)
B24LF	Mobile Telephone Microphone - Left Front	—	In the passenger compartment, left front, attached to the headliner	—	B24LF Mobile Telephone Microphone - Left Front
B24RF	Mobile Telephone Microphone - Right Front	IOK	In the passenger compartment, right front, attached to the headliner	—	B24RF Mobile Telephone Microphone - Right Front

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
B26	Crankshaft Position Sensor	—	(L8T) In the engine compartment, left rear, mounted to rear of engine block. Below M64 Starter Motor (L8T) In the engine compartment, right rear, mounted to right rear side of engine block, behind M64 Starter Motor	Engine Components - Right (L5P) Engine Components - Right Rear (L8T)	B26 Crankshaft Position Sensor (L5P) B26 Crankshaft Position Sensor (L8T)
B27LF	Front Side Door Outside Handle Switch - Left	—	Outside of the vehicle, at the rear of the driver door, within A24D Front Side Door Outside Handle - Left	—	—
B27RF	Front Side Door Outside Handle Switch - Right	—	Outside of the vehicle, at the rear of the driver door, within A24P Front Side Door Outside Handle - Right	—	—
B33	Low Coolant Level Switch	—	In the engine compartment, in the engine coolant reservoir	—	B33 Low Coolant Level Switch (L5P)
B34	Engine Coolant Temperature Sensor	L8T	In the engine compartment, front center, mounted to water pump	Engine Components - Top (L5P)	B34 Engine Coolant Temperature Sensor (L5P)
B35	Engine Oil Level Indicator Switch	L8T	In the engine compartment, mounted to the right side of the engine oil pan	Engine Components - Left (L5P) Engine Components - Right Front (L8T) Engine Components - Right Rear (L8T)	B35 Engine Oil Level Indicator Switch (L5P) B35 Engine Oil Level Indicator Switch (L8T)
B36	Engine Oil Temperature Sensor	L8T	(L8T) In the engine compartment, left side, mounted to the engine oil filter housing	Engine Compartment Components - Top (2of2)	B36 Engine Oil Temperature Sensor (L8T)
B37B	Engine Oil Pressure Sensor	—	(L8T) In the engine compartment, left side of engine, mounted above the engine oil filter (L5P) In the engine compartment, front center, mounted to the left side of engine block	Engine Components - Left (L5P)	B37B Engine Oil Pressure Sensor (L5P)
B39	Air Conditioning Evaporator Air Temperature Sensor	—	In the passenger compartment, behind the instrument panel, mounted in the HVAC housing	—	B39 Air Conditioning Evaporator Air Temperature Sensor
B46	Fuel Level Sensor	—	Under the vehicle, inside the front fuel tank, part of the fuel pump and level sensor assembly	—	—
B46AX	Fuel Level Sensor - Auxiliary	—	Under the vehicle, inside the rear fuel tank, part of the fuel pump and level sensor assembly	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
B47	Fuel Pressure Sensor	—	• (L8T) Under the vehicle, left side, in front of rear axle, mounted to the top of the fuel tank • (L5P) Under the vehicle, right middle, mounted to the right inboard side frame rail, rearward of R29 Fuel Filter	• Fuel Tank Components (L8T) • Underbody Components	• B47 Fuel Pressure Sensor (L5P) • B47 Fuel Pressure Sensor (L8T) • B47 Fuel Pressure Sensor (L8T-N2N)
B47B	Fuel Rail Pressure Sensor	—	In the engine compartment, at the top of the engine, mounted to the fuel rail	Engine Components - Right (L5P)	B47B Fuel Rail Pressure Sensor (L5P)
B52C	Heated Oxygen Sensor - Bank 1 Sensor 1	L8T	Under the vehicle, mounted in the bank 1 exhaust, upstream of the catalytic converter	—	B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L8T)
B52D	Heated Oxygen Sensor - Bank 1 Sensor 2	L8T	Under the vehicle, mounted in the bank 1 exhaust, downstream of the catalytic converter	—	B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (L8T)
B52E	Heated Oxygen Sensor - Bank 2 Sensor 1	L8T	Under the vehicle, mounted in the bank 2 exhaust, upstream of the catalytic converter	—	B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (L8T)
B52F	Heated Oxygen Sensor - Bank 2 Sensor 2	L8T	Under the vehicle, mounted in the bank 2 exhaust, downstream of the catalytic converter	—	B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (L8T)
B55	Engine Compartment Cover Switch	—	Outside the vehicle, at the front center of the hood, part of the hood latch assembly	• Engine Compartment Components - Left (1of2) • Engine Compartment Components - Top (1of2)	B55 Engine Compartment Cover Switch
B58L	Airbag Front End Discriminating Sensor - Left	—	In the engine compartment, left front, at the bottom of the radiator core support	• Engine Compartment Components - Left (1of2) • Engine Compartment Components - Top (1of2)	B58L Airbag Front End Discriminating Sensor - Left
B58R	Airbag Front End Discriminating Sensor - Right	—	In the engine compartment, right front, at the bottom of the radiator core support	• Engine Compartment Components - Left (1of2) • Engine Compartment Components - Top (1of2)	B58R Airbag Front End Discriminating Sensor - Right
B61P	Seat Belt Tension Sensor - Passenger	—	In the passenger compartment, at the base of the B-pillar, part of the passenger seat belt retractor pretensioner	• Passenger Compartment - Right Rear - Double Cab/Crew Cab • Passenger Compartment - Right Rear - Regular Cab	B61P Seat Belt Tension Sensor - Passenger
B63LF	Airbag Side Impact Sensor - Left Front Door	—	At the left front of the passenger compartment, mounted inside the left front door, at the bottom	Driver Door Components	B63LF Airbag Side Impact Sensor - Left Front Door
B63LR	Airbag Side Impact Rear Sensor - Left Door	Double Cab / Crew Cab	At the left rear of the passenger compartment, mounted inside the left rear door, at the bottom	—	B63LR Airbag Side Impact Rear Sensor - Left Door

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
B63RF	Airbag Side Impact Sensor - Right Front Door	—	At the right front of the passenger compartment, mounted inside the right front door, at the bottom	Passenger Door Components	B63RF Airbag Side Impact Sensor - Right Front Door
B63RR	Airbag Side Impact Rear Sensor - Right Door	Double Cab / Crew Cab	At the right rear of the passenger compartment, mounted inside the right rear door, at the bottom	—	B63RR Airbag Side Impact Rear Sensor - Right Door
B65	Manifold Absolute Pressure and Intake Air Temperature Sensor	L5P	In the engine compartment, left side of engine, mounted to the intake manifold, near Q18A Fuel Pressure Regulator 1	Engine Components - Left (L5P)	B65 Manifold Absolute Pressure and Intake Air Temperature Sensor (L5P)
B66	Intake Air Temperature Sensor	—	In the engine compartment, left side of engine, mounted to the intake manifold, at rear of engine	Engine Components - Left (L5P)	B66 Intake Air Temperature Sensor (L5P)
B68A	Knock Sensor 1	L8T	(L8T) In the engine compartment, left side of engine, mounted to the rear of the engine block, below exhaust manifold	Engine Components - Left Rear (L8T)	B68A Knock Sensor 1 (L8T)
B68B	Knock Sensor 2	L8T	(L8T) In the engine compartment, right rear, mounted to right rear side of engine block, behind M64 Starter Motor	Engine Components - Right Rear (L8T)	B68B Knock Sensor 2 (L8T)
B74	Manifold Absolute Pressure Sensor	L8T	In the engine compartment, front center, mounted to intake manifold, to the left of Q38 Throttle Body	• Engine Components - Left Front (L8T) • Engine Components - Right Front (L8T)	B74 Manifold Absolute Pressure Sensor (L8T)
B75	Mass Airflow Sensor	—	In the engine compartment, left front, mounted to the air cleaner lid	Engine Compartment Components - Top (2of2)	• B75 Mass Airflow Sensor (L5P) • B75 Mass Airflow Sensor (L8T)
B77	Radio Volume Compensator Interior Noise Microphone	—	In the passenger compartment, front center, mounted to the headliner, rearward of A103 Roof Console	—	B77 Radio Volume Compensator Interior Noise Microphone
B81B	Automatic Transmission Control Park Position Switch	—	In the passenger compartment, left front, inside of S3 Transmission Shift Lever	—	—
B87	Rearview Driver Information Camera	UVB / UV2	Outside the vehicle, at the top middle of the tailgate, mounted in the tailgate handle	Rear of Vehicle Components	B87 Rearview Driver Information Camera (UV2)
B87CA	Auxiliary Rearview Camera - Cargo Area	UVN	Outside of the vehicle, at the rear of the cab, back of roof, within E6 Center High Mounted Stop Lamp	—	• B87CA Auxiliary Rearview Camera - Cargo Area (UVN) • B87CA Auxiliary Rearview Camera - Cargo Area (UVO)
B88D	Seat Belt Switch - Driver	—	In the passenger compartment, at the inboard side of the driver seat, part of the seat belt buckle	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
B88LR	Seat Belt Switch - Left Rear	—	In the passenger compartment, at the inboard side of the rear seat left, part of the seat belt buckle	—	—
B88MR	Seat Belt Switch - Rear Middle	—	In the passenger compartment, at the right side of the rear seat middle, part of the seat belt buckle	—	—
B88P	Seat Belt Switch - Passenger	—	In the passenger compartment, at the inboard side of the passenger seat, part of the seat belt buckle	—	—
B88RR	Seat Belt Switch - Right Rear	—	In the passenger compartment, at the inboard side of the rear seat right, part of the seat belt buckle	—	—
B99	Steering Angle Sensor Module	—	In the passenger compartment, near the base of the steering column, near the floor	*Steering Column Components*	*B99 Steering Angle Sensor Module*
B107	Accelerator Pedal Position Sensor	—	In the passenger compartment, in the driver side foot well, under the instrument panel	*Instrument Panel - Front*	*B107 Accelerator Pedal Position Sensor*
B110	Battery Monitor Module	—	In the engine compartment, right side, near C1 Battery negative cable	*Engine Compartment Components - Top (1of2)*	• *B110 Battery Monitor Module X1* • *B110 Battery Monitor Module X2*
B117A	Windshield Outside Moisture/Ambient Light and Humidity Sensor	—	In the passenger compartment, at the top center of the windshield, forward of windshield multifunction sensor mount bracket cover insert	—	*B117A Windshield Outside Moisture/ Ambient Light and Humidity Sensor (CE1)*
B118	Windshield Washer Solvent Container Level Sensor	—	At the left front corner of vehicle, forward of the front wheelhouse liner, at the bottom of the washer fluid reservoir	*Engine Compartment Components - Left (1of2)*	*B118 Windshield Washer Solvent Container Level Sensor*
B130	Exhaust Gas Recirculation Temperature Sensor	—	In the engine compartment, right front, mounted in exhaust, in front of B345P Exhaust Pressure Differential Sensor - Particulate Filter	*Engine Components - Left (L5P)*	*B130 Exhaust Gas Recirculation Temperature Sensor (L5P)*
B136	Exhaust Particulate Matter Sensor	L5P	On the underbody, mounted to the inboard side of the right frame rail, forward of the right rear shock	—	*B136 Exhaust Particulate Matter Sensor (L5P)*
B139	Transfer Case Two/Four Wheel Drive Actuator Position Sensor	NP0 / NQH	Under the vehicle, mounted to the transfer case	*Transfer Case Components*	• *B139 Transfer Case Two/Four Wheel Drive Actuator Position Sensor (L5P)* • *B139 Transfer Case Two/Four Wheel Drive Actuator Position Sensor (L8T)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
B150	Fuel Tank Pressure Sensor	L8T	Under the vehicle, at the top of the fuel tank	*Fuel Tank Components (L8T)*	• *B150 Fuel Tank Pressure Sensor (FHS)* • *B150 Fuel Tank Pressure Sensor (L8T&N2L)* • *B150 Fuel Tank Pressure Sensor (L8T&N2N)* • *B150 Fuel Tank Pressure Sensor (N2M)*
B153D	Front Seat Belt Buckle - Driver	—	In the passenger compartment, at the inboard side of the drive seat	—	*B153D Front Seat Belt Buckle - Driver*
B153LR	Rear Seat Belt Buckle - Left	—	In the passenger compartment, at the inboard side of the rear seat left	• *Passenger Compartment - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Right Rear - Double Cab/Crew Cab*	*B153LR Rear Seat Belt Buckle - Left*
B153P	Front Seat Belt Buckle - Passenger	—	In the passenger compartment, at the inboard side of the passenger seat	—	*B153P Front Seat Belt Buckle - Passenger*
B153RR	Rear Seat Belt Buckle - Right	—	In the passenger compartment, at the inboard side of the rear seat right	• *Passenger Compartment - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Right Rear - Double Cab/Crew Cab*	*B153RR Rear Seat Belt Buckle - Right*
B172LF	Front Disc Brake Pad Wear Sensor - Left	—	Under the vehicle, at left front caliper	*Front Brake and Suspension Components*	*B172LF Front Disc Brake Pad Wear Sensor - Left*
B172LR	Rear Disc Brake Pad Wear Sensor - Left	—	Under the vehicle, at left rear caliper	—	*B172LR Rear Disc Brake Pad Wear Sensor - Left*
B174G	Front View Driver Information Camera - Grille	UV2	At the front of the vehicle, front center, near the grille	*Front of Vehicle Components*	*B174G Front View Driver Information Camera - Grille (UV2)*
B174W	Front View Camera - Windshield	ASV	In the passenger compartment, at the top middle of the windshield	—	*B174W Front View Camera - Windshield (UEU)*
B193A	Charge Air Cooler Air Temperature Sensor - Inlet	L5P	In the engine compartment, mounted to the left side of the air charge cooler	*Engine Components - Left (L5P)*	*B193A Charge Air Cooler Air Temperature Sensor - Inlet (L5P)*
B193B	Charge Air Cooler Air Temperature Sensor - Outlet	L5P	In the engine compartment, mounted to the front of the air charge cooler	—	*B193B Charge Air Cooler Air Temperature Sensor - Outlet (L5P)*
B194	Reductant Pressure Sensor	L5P	Under the vehicle, right side, forward of rear axle, within reductant tank, part of A38 Reductant Tank Fluid Supply Pump Module	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
B195A	Nitrogen Oxides Sensor 1	L5P	In the engine compartment, attached to the exhaust pipe, on the top left rear side of the engine	—	B195A Nitrogen Oxides Sensor 1 (L5P)
B195B	Nitrogen Oxides Sensor 2	L5P	Under the vehicle, attached to the exhaust pipe, at the middle of the diesel particulate filter	—	B195B Nitrogen Oxides Sensor 2 (L5P)
B198	Fuel Composition Sensor	FHS	Under the vehicle, mounted to the left side of the frame	—	B198 Fuel Composition Sensor (FHS)
B212	Reductant Tank Fluid Sensor	L5P	Under the vehicle, right side, attached to reductant tank	—	B212 Reductant Tank Fluid Sensor (L5P)
B214	Reductant Tank Temperature Sensor	L5P	Under the vehicle, right side, forward of rear axle, within reductant tank, part of A38 Reductant Tank Fluid Supply Pump Module	—	—
B218L	Side Obstacle Detection Control Module - Left	UKC	Outside of the vehicle, left rear corner, mounted to the inside of the rear bumper	Rear Bumper - Inside	B218L Side Obstacle Detection Control Module - Left
B218R	Side Obstacle Detection Control Module - Right	UKC	Outside of the vehicle, right rear corner, mounted to the inside of the rear bumper	Rear Bumper - Inside	B218R Side Obstacle Detection Control Module - Right
B225L	Side View Driver Information Camera - Left	UV2	Outside of vehicle, left side, within A9A Outside Rearview Mirror - Driver	—	—
B225R	Side View Driver Information Camera - Right	UV2	Outside of vehicle, right side, within A9B Outside Rearview Mirror - Passenger	—	—
B302	Steering Gear Pressure Sensor	—	In the passenger compartment, on the steering column near the base of the shifter	—	B302 Steering Gear Pressure Sensor (NV8)
B306A	Parking Assist Alarm Sensor - Front Left Outer	UD5	At the front of the vehicle, left side, mounted in the front bumper	Front of Vehicle Components	B306A Parking Assist Alarm Sensor - Front Left Outer
B306B	Parking Assist Alarm Sensor - Front Left Middle	UD5	At the front of the vehicle, left of center, mounted in the front bumper	Front of Vehicle Components	B306B Parking Assist Alarm Sensor - Front Left Middle
B306C	Parking Assist Alarm Sensor - Front Right Middle	UD5	At the front of the vehicle, right of center, mounted in the front bumper	Front of Vehicle Components	B306C Parking Assist Alarm Sensor - Front Right Middle
B306D	Parking Assist Alarm Sensor - Front Right Outer	UD5	At the front of the vehicle, right side, mounted in the front bumper	Front of Vehicle Components	B306D Parking Assist Alarm Sensor - Front Right Outer
B306E	Parking Assist Alarm Sensor - Rear Left Outer	UD5 / UD7	At the rear of the vehicle, left side, mounted in the rear bumper	• Rear Bumper - Inside • Rear of Vehicle Components	B306E Parking Assist Alarm Sensor - Rear Left Outer
B306F	Parking Assist Alarm Sensor - Rear Left Middle	UD5 / UD7	At the rear of the vehicle, left of center, mounted in the rear bumper	• Rear Bumper - Inside • Rear of Vehicle Components	B306F Parking Assist Alarm Sensor - Rear Left Middle
B306G	Parking Assist Alarm Sensor - Rear Right Middle	UD5 / UD7	At the rear of the vehicle, right of middle, mounted in the rear bumper	• Rear Bumper - Inside • Rear of Vehicle Components	B306G Parking Assist Alarm Sensor - Rear Right Middle

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
B306H	Parking Assist Alarm Sensor - Rear Right Outer	UD5 / UD7	At the rear of the vehicle, right side, in the rear bumper	• Rear Bumper - Inside • Rear of Vehicle Components	B306H Parking Assist Alarm Sensor - Rear Right Outer
B310	Fuel Pressure and Temperature Sensor	L8T	In the engine compartment, rear center, under intake manifold, at the rear of the driver side fuel rail	—	B310 Fuel Pressure and Temperature Sensor (L8T)
B345P	Exhaust Pressure Differential Sensor - Particulate Filter	L5P	Under the vehicle, right side, near transmission cross member, mounted to the exhaust particulate filter	Underbody Components	B345P Exhaust Pressure Differential Sensor - Particulate Filter
B352	Video Display Inside Rearview Mirror Camera	DRZ	Outside the vehicle, at the top center of the rear window bridge, within E6 Center High Mounted Stop Lamp	Endgate Components	• B352 Video Display Inside Rearview Mirror Camera (DRZ) • B352 Video Display Inside Rearview Mirror Camera (UVB)
B359	Exhaust Gas Temperature Sensor Module	L5P	In the engine compartment, right rear, mounted to exhaust, just above the Q61B Reductant Fluid Injector 2	Engine Components - Left (L5P)	B359 Exhaust Gas Temperature Sensor Module (L5P)
B359B	Exhaust Gas Temperature Sensor Module 2	L5P	In the engine compartment, right rear, beneath the plenum front panel outer reinforcement	—	B359B Exhaust Gas Temperature Sensor Module 2 (L5P)
B359C	Exhaust Gas Temperature Sensor Module 3	L5P	Under the vehicle, right side, near transmission cross member	—	B359C Exhaust Gas Temperature Sensor Module 3 (L5P)
B394	Evaporative Emission Canister Purge System Pressure Sensor	—	On the underbody, at the top left side of the fuel tank	Fuel Tank Components (L8T)	B394 Evaporative Emission Canister Purge System Pressure Sensor
C1	Battery	—	In the engine compartment, on the right side	—	—
C1B	Battery - Auxiliary	K4B / KHF	In the engine compartment, on the left side	—	—
C1D	Battery 2	K4B	In the engine compartment, on the left side	—	—
E2LF	Front Side Marker Lamp - Left	-GFF / GFI	Outside the vehicle, at the left front corner, inside the E13LA Front Headlamp - Left	—	E2LF Front Side Marker Lamp - Left
E2LRW	Rear Side Marker Lamp - Left Wheel Opening Molding	—	Outside the vehicle, on the left rear wheel fender flare - Center	—	E2LRW Rear Side Marker Lamp - Left Wheel Opening Molding
E2RF	Front Side Marker Lamp - Right	-GFF / GFI	Outside the vehicle, at the right front corner, inside the E13LA Front Headlamp - Left	—	E2RF Front Side Marker Lamp - Right
E2RRW	Rear Side Marker Lamp - Right Wheel Opening Molding	—	Outside the vehicle, on the right rear wheel fender flare - Center	—	E2RRW Rear Side Marker Lamp - Right Wheel Opening Molding
E3A	Front Clearance Lamp - Roof Left Outer	—	Outside the vehicle, at the front of the roof	—	E3A Front Clearance Lamp - Roof Left Outer

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
E3E	Front Clearance Lamp - Roof Right Outer	—	Outside the vehicle, at the front of the roof	—	E3E Front Clearance Lamp - Roof Right Outer
E3FA	Front Identification Lamp	—	Outside the vehicle, at the front of the roof	—	E3FA Front Identification Lamp
E3LF	Rear Clearance Lamp - Fender Left Front	DRZ	Outside the vehicle, on the left rear wheel fender flare - Front	—	E3LF Rear Clearance Lamp - Fender Left Front
E3LR	Rear Clearance Lamp - Fender Left Rear	DRZ	Outside the vehicle, on the left rear wheel fender flare - Rear	—	E3LR Rear Clearance Lamp - Fender Left Rear
E3MD	Front Clearance Lamp - Driver Outside Rearview Mirror	—	Outside of vehicle, left side, within A9A Outside Rearview Mirror - Driver	—	—
E3MP	Front Clearance Lamp - Passenger Outside Rearview Mirror	—	Outside of vehicle, right side, within A9B Outside Rearview Mirror - Passenger	—	—
E3RA	Rear Identification Lamp	—	Outside of vehicle, above center of bumper	—	E3RA Rear Identification Lamp
E3RF	Rear Clearance Lamp - Fender Right Front	DRZ	Outside the vehicle, on the right rear wheel fender flare - Front	—	E3RF Rear Clearance Lamp - Fender Right Front
E3RR	Rear Clearance Lamp - Fender Right Rear	DRZ	Outside the vehicle, on the right rear wheel fender flare - Rear	—	E3RR Rear Clearance Lamp - Fender Right Rear
E5A	Backup Bulb - Left	—	At the rear of vehicle, left rear corner, within E42L Rear Body Structure Stop Lamp - Left	—	E5A Backup Bulb - Left
E5AM	Stop/Turn Signal Lamp - Left	—	At the left rear of the vehicle, within E42L Rear Body Structure Stop Lamp - Left	—	—
E5AN	Stop/Turn Signal Lamp - Right	—	At the left rear of the vehicle, within E42R Rear Body Structure Stop Lamp - Right	—	—
E5B	Backup Bulb - Right	—	At the rear of vehicle, right rear corner, within E42R Rear Body Structure Stop Lamp - Right	—	E5B Backup Bulb - Right
E5SB	Tail/Stop and Turn Signal Lamp Bulb - Left	ZW9	Outside of the vehicle, at the left rear corner of the cargo box, within E42L Rear Body Structure Stop Lamp - Left	—	—
E5TB	Tail/Stop and Turn Signal Lamp Bulb - Right	ZW9	Outside of the vehicle, at the right rear corner of the cargo box, within E42R Rear Body Structure Stop Lamp - Right	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
E6A	High Mount Stop and Cargo Lamp	—	Outside the vehicle, at the top center of the rear window bridge	—	- E6A High Mount Stop and Cargo Lamp - Crew Cab and Double Cab (UVO) - E6A High Mount Stop and Cargo Lamp - Crew Cab and Double Cab (-UVO) - E6A High Mount Stop and Cargo Lamp - Regular Cab
E6B	High Mount Stop Lamp Bulb	—	Outside the vehicle, at the top center of the rear window bridge	—	E6B High Mount Stop Lamp Bulb - Regular Cab
E7	Rear License Plate Lamp	ZW9	Outside the vehicle, mounted in the left frame rail	—	E7 Rear License Plate Lamp (ZW9)
E7L	Rear License Plate Lamp - Left	E63	Outside the vehicle, mounted in the middle of the rear bumper	- Rear Bumper - Inside - Rear of Vehicle Components	E7L Rear License Plate Lamp - Left
E7R	Rear License Plate Lamp - Right	E63	Outside the vehicle, mounted in the middle of the rear bumper	- Rear Bumper - Inside - Rear of Vehicle Components	E7R Rear License Plate Lamp - Right
E8ZL	Assist Step Lamp - Left	BRS	Under the vehicle, along the left frame rail, under the driver door	—	E8ZL Assist Step Lamp - Left (BRS)
E8ZR	Assist Step Lamp - Right	BRS	Under the vehicle, along the right frame rail, under the passenger door	—	E8ZR Assist Step Lamp - Right (BRS)
E12A	Glow Plug 1	L5P	In the engine compartment, In the cylinder head at cylinder 1	Engine Components - Right Front (L5P)	E12A Glow Plug 1 (L5P)
E12B	Glow Plug 2	L5P	In the engine compartment, In the cylinder head at cylinder 2	Engine Components - Left (L5P)	E12B Glow Plug 2 (L5P)
E12C	Glow Plug 3	L5P	In the engine compartment, In the cylinder head at cylinder 3	Engine Components - Right Front (L5P)	E12C Glow Plug 3 (L5P)
E12D	Glow Plug 4	L5P	In the engine compartment, In the cylinder head at cylinder 4	Engine Components - Left (L5P)	E12D Glow Plug 4 (L5P)
E12E	Glow Plug 5	L5P	In the engine compartment, In the cylinder head at cylinder 5	Engine Components - Right Rear (L5P)	E12E Glow Plug 5 (L5P)
E12F	Glow Plug 6	L5P	In the engine compartment, In the cylinder head at cylinder 6	Engine Components - Left (L5P)	E12F Glow Plug 6 (L5P)
E12G	Glow Plug 7	L5P	In the engine compartment, In the cylinder head at cylinder 7	Engine Components - Right Rear (L5P)	E12G Glow Plug 7 (L5P)
E12H	Glow Plug 8	L5P	In the engine compartment, In the cylinder head at cylinder 8	Engine Components - Left (L5P)	E12H Glow Plug 8 (L5P)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
E13LA	Front Headlamp - Left	—	Outside the vehicle, at the left front corner	Front of Vehicle Components	• E13LA Front Headlamp - Left X1 • E13LA Front Headlamp - Left X2
E13RA	Front Headlamp - Right	—	Outside the vehicle, at the right front corner	Front of Vehicle Components	• E13RA Front Headlamp - Right X1 • E13RA Front Headlamp - Right X2
E14A	Front Seat Back Heater - Driver	KA1 / KQV	In the passenger compartment, in the driver seat back	—	E14A Front Seat Back Heater - Driver (KA1)
E14B	Front Seat Cushion Heater - Driver	KA1 / KQV	In the passenger compartment, in the driver seat cushion	—	E14B Front Seat Cushion Heater - Driver (KA1)
E14C	Front Seat Back Heater - Passenger	KA1 / KQV	In the passenger compartment, in the passenger seat back	—	E14C Front Seat Back Heater - Passenger (KA1)
E14D	Front Seat Cushion Heater - Passenger	KA1 / KQV	In the passenger compartment, in the passenger seat cushion	—	E14D Front Seat Cushion Heater - Passenger (KA1)
E14F	Rear Seat Cushion Heater - Left Rear	KA6	In the passenger compartment, in the left rear seat cushion	—	E14F Rear Seat Cushion Heater - Left Rear (KA6)
E14H	Rear Seat Cushion Heater - Right Rear	KA6	In the passenger compartment, in the right rear seat cushion	—	E14H Rear Seat Cushion Heater - Right Rear (KA6)
E15	Steering Wheel Heater	KI3	In the passenger compartment, left front, part of the steering wheel	—	—
E17D	Outside Rearview Mirror Glass - Driver	—	Outside the vehicle, at the front of the driver door, part of A9A Outside Rearview Mirror - Driver	—	—
E17P	Outside Rearview Mirror Glass - Passenger	—	Outside the vehicle, at the front of the passenger door, part of A9B Outside Rearview Mirror - Passenger	—	—
E18	Rear Window Defogger Grid	—	At the rear of the passenger compartment, part of the rear window glass	• Passenger Compartment - Left Rear - Regular Cab • Passenger Compartment - Right Rear - Regular Cab	• E18 Rear Window Defogger Grid X1 • E18 Rear Window Defogger Grid X2
E28	Front Floor Console Compartment Lamp	D07	In the passenger compartment, between the front seats, inside the floor console storage bin	Floor Console Components 2 of 2	E28 Front Floor Console Compartment Lamp
E29LF	Front Fog Lamp - Left	T3U	Outside the vehicle, at the left front corner, in the front bumper, below E13LA Front Headlamp - Left	Front of Vehicle Components	• E29LF Front Fog Lamp - Left (T3U&VHU) • E29LF Front Fog Lamp - Left (T3U&Z88-X88-VHU)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
E29RF	Front Fog Lamp - Right	T3U	Outside the vehicle, at the right front corner, in the front bumper, below E13RA Front Headlamp - Right	*Front of Vehicle Components*	- *E29RF Front Fog Lamp - Right (T3U&VHU)* - *E29RF Front Fog Lamp - Right (T3U&Z88-X88-VHU)*
E31L	Sunshade Mirror Lamp - Left	DH6	In the passenger compartment, at the left front of the headliner, part of A3L Sunshade - Left	—	*E31L Sunshade Mirror Lamp - Left*
E31R	Sunshade Mirror Lamp - Right	DH6	In the passenger compartment, at the right front of the headliner, part of A3R Sunshade - Right	—	*E31R Sunshade Mirror Lamp - Right*
E33L	Cargo Lamp - Left	—	Outside the vehicle, beneath the top of the left side of the bed left rear	—	*E33L Cargo Lamp - Left*
E33LB	Cargo Box Lamp Bulb - Left	—	In the rear cargo box, left side	—	*E33LB Cargo Box Lamp Bulb - Left - Regular Cab*
E33R	Cargo Lamp - Right	—	Outside the vehicle, beneath the top of the right side of the bed right rear	—	*E33R Cargo Lamp - Right*
E33RB	Cargo Box Lamp Bulb - Right	—	In the rear cargo box, right side	—	*E33RB Cargo Box Lamp Bulb - Right - Regular Cab*
E33TH	Rear Closure Auxiliary Signal Lamp	—	At the rear of the vehicle, in the center of the endgate	- *Endgate Components* - *Rear of Vehicle Components*	*E33TH Rear Closure Auxiliary Signal Lamp*
E37SMC	Rear Seat Position Center Reading and Courtesy Lamp	Double Cab / Crew Cab	In the passenger compartment, rear center, mounted to headliner	—	*E37SMC Rear Seat Position Center Reading and Courtesy Lamp*
E40	Air Heater	C32	In the passenger compartment, at the top of the HVAC box	—	- *E40 Air Heater X1 (C32)* - *E40 Air Heater X2 (C32)* - *E40 Air Heater X3 (C32)*
E42L	Rear Body Structure Stop Lamp - Left	—	Outside the vehicle, at the left rear corner of the cargo box	*Rear of Vehicle Components*	*E42L Rear Body Structure Stop Lamp - Left (GF4 / GF9 / GFC / GFD / GRZ)*
E42R	Rear Body Structure Stop Lamp - Right	—	Outside the vehicle, at the right rear corner of the cargo box	*Rear of Vehicle Components*	*E42R Rear Body Structure Stop Lamp - Right (GF4 / GF9 / GFC / GFD / GRZ)*
E52	Reductant Heater 2 - Injector Supply Pipe	L5P	Under the vehicle, right side, forward of rear axle, attached to reductant line, near reductant tank	—	*E52 Reductant Heater 2 - Injector Supply Pipe (L5P)*
E53A	Reductant Heater 1 - Tank	—	Under the vehicle, right side, forward of rear axle, within reductant tank, part of A38 Reductant Tank Fluid Supply Pump Module	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
E53C	Reductant Heater 3 - Tank	—	Under the vehicle, right side, forward of rear axle, within reductant tank, part of A38 Reductant Tank Fluid Supply Pump Module	—	—
E63D	Front Side Door Inside Handle Illumination Lamp - Left	—	In the passenger compartment, in the driver door handle trim panel	—	*E63D Front Side Door Inside Handle Illumination Lamp - Left*
E63P	Front Side Door Inside Handle Illumination Lamp - Right	—	In the passenger compartment, in the passenger door handle trim panel	—	*E63P Front Side Door Inside Handle Illumination Lamp - Right*
E90D	Exterior Flood Lamp - Driver Outside Rearview Mirror	DEZ	Outside of vehicle, left side, mounted to the bottom of A9A Outside Rearview Mirror - Driver	—	—
E90DC	Exterior Flood Lamp - Driver Outside Rearview Mirror Cargo	DPO / DQS	Outside of the vehicle, left side, at the front of A9A Outside Rearview Mirror - Driver	—	—
E90P	Exterior Flood Lamp - Passenger Outside Rearview Mirror	DEZ	Outside of vehicle, right side, mounted to the bottom of A9B Outside Rearview Mirror - Passenger	—	—
E90PC	Exterior Flood Lamp - Passenger Outside Rearview Mirror Cargo	DPO / DQS	Outside of the vehicle, right side, at the front of A9B Outside Rearview Mirror - Passenger	—	—
F101	Instrument Panel Airbag	—	In the passenger compartment, behind the instrument panel upper glove box	*Instrument Panel - Rear*	• *F101 Instrument Panel Airbag X1* • *F101 Instrument Panel Airbag X2*
F105L	Front and Rear Row Roof Rail Airbag - Left	DOUBLE CAB / CREW CAB	In the passenger compartment, along the left side of the headliner	*Passenger Compartment - Left Front - Double Cab/Crew Cab*	*F105L Front and Rear Row Roof Rail Airbag - Left*
F105LF	Front Row Roof Rail Airbag - Left	REGULAR CAB	In the passenger compartment, along the left side of the headliner	*Passenger Compartment - Left Rear - Regular Cab*	*F105LF Front Row Roof Rail Airbag - Left*
F105R	Front and Rear Row Roof Rail Airbag - Right	DOUBLE CAB / CREW CAB	In the passenger compartment, along the right side of the headliner	*Passenger Compartment - Right Rear - Double Cab/Crew Cab*	*F105R Front and Rear Row Roof Rail Airbag - Right*
F105RF	Front Row Roof Rail Airbag - Right	REGULAR CAB	In the passenger compartment, along the right side of the headliner	*Passenger Compartment - Right Rear - Regular Cab*	*F105RF Front Row Roof Rail Airbag - Right*
F106D	Front Seat Outboard Seat Back Airbag - Driver	—	In the passenger compartment, in the outboard side of the driver seat back	—	*F106D Front Seat Outboard Seat Back Airbag - Driver*
F106P	Front Seat Outboard Seat Back Airbag - Passenger	—	In the passenger compartment, in the outboard side of the passenger seat back	—	*F106P Front Seat Outboard Seat Back Airbag - Passenger*
F107	Steering Wheel Airbag	—	In the passenger compartment, mounted to the middle of the steering wheel	*Steering Wheel Components*	• *F107 Steering Wheel Airbag X1 (NK5)* • *F107 Steering Wheel Airbag X2 (NK5)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
F112D	Front Seat Belt Retractor - Driver	—	In the passenger compartment, at the base of the driver side B-pillar	• Passenger Compartment - Left Front - Double Cab/Crew Cab • Passenger Compartment - Left Rear - Regular Cab	• F112D Front Seat Belt Retractor - Driver - Crew Cab and Double Cab • F112D Front Seat Belt Retractor - Driver - Regular Cab
F112P	Front Seat Belt Retractor - Passenger	—	In the passenger compartment, at the base of the passenger side B-pillar	• Passenger Compartment - Right Rear - Double Cab/Crew Cab • Passenger Compartment - Right Rear - Regular Cab	• F112P Front Seat Belt Retractor - Passenger - Crew Cab and Double Cab • F112P Front Seat Belt Retractor - Passenger - Regular Cab
F113D	Front Seat Belt Anchor Plate Tensioner - Driver	—	In the passenger compartment, mounted to the outboard driver seat track	• Passenger Compartment - Left Front - Double Cab/Crew Cab • Passenger Compartment - Left Rear - Regular Cab	F113D Front Seat Belt Anchor Plate Tensioner - Driver
F113P	Front Seat Belt Anchor Plate Tensioner - Passenger	—	In the passenger compartment, mounted to the outboard passenger seat track	• Passenger Compartment - Right Rear - Double Cab/Crew Cab • Passenger Compartment - Right Rear - Regular Cab	F113P Front Seat Belt Anchor Plate Tensioner - Passenger
G1	Air Conditioning Compressor	—	(L5P) In the engine compartment, left front, mounted to the left lower side of the engine	—	—
G12	Fuel Pump	—	Under the vehicle, within the front fuel tank, part of A7 Fuel Tank Fuel Pump Module	—	—
G12AX	Fuel Pump - Auxiliary	—	Under the vehicle, within the rear fuel tank, part of A7AX Fuel Tank Fuel Pump Module Auxiliary	—	G12AX Fuel Pump - Auxiliary (L5P)
G13	Generator	—	In the engine compartment, right front, mounted to the right upper side of the engine	Engine Components - Right Front (L8T)	• G13 Generator X1 (L5P) • G13 Generator X1 (L8T) • G13 Generator X1 (VYU) • G13 Generator X2

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
G13A	Auxiliary Generator	—	In the engine compartment, right front, mounted to the left lower side of the engine	—	• G13A Auxiliary Generator X1 (L5P) • G13A Auxiliary Generator X1 (L8T) • G13A Auxiliary Generator X1 (VYU) • G13A Auxiliary Generator X2 (KHF)
G18	Fuel Pump - High Pressure	—	Under hood, mounted to top on engine	—	G18 Fuel Pump - High Pressure (L8T)
G24	Windshield Washer Pump	—	In the engine compartment, attached to the washer fluid reservoir, behind E13LA Front Headlamp - Left	Engine Compartment Components - Left (1of2)	G24 Windshield Washer Pump
G31D	Front Seat Back Lumbar Pump - Driver	—	In the passenger compartment, left front, within in the driver seat back	—	G31D Front Seat Back Lumbar Pump - Driver (A45&AF6)
G31P	Front Seat Back Lumbar Pump - Passenger	—	In the passenger compartment, right front, within in the passenger seat back	—	• G31P Front Seat Back Lumbar Pump - Passenger (-(AKE/AVU)) • G31P Front Seat Back Lumbar Pump - Passenger (AKE&AVU)
G33	Reductant Pump	L5P	Under the vehicle, right side, forward of rear axle, within reductant tank, part of A38 Reductant Tank Fluid Supply Pump Module	—	—
G34	Evaporative Emission System Leak Detection Pump	—	Under the vehicle, center, forward of front fuel tank	—	G34 Evaporative Emission System Leak Detection Pump
K4	Running Board Control Module	—	Underneath the vehicle, along the outside of the left frame rail, near the driver door	—	• K4 Running Board Control Module X1 • K4 Running Board Control Module X2 • K4 Running Board Control Module X3

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
K9	Body Control Module	—	In the passenger compartment, behind the driver side of the instrument panel, outboard of the steering column	*Instrument Panel - Rear*	• *K9 Body Control Module X1* • *K9 Body Control Module X2* • *K9 Body Control Module X3* • *K9 Body Control Module X4* • *K9 Body Control Module X5* • *K9 Body Control Module X6* • *K9 Body Control Module X7* • *K9 Body Control Module X8*
K17	Electronic Brake Control Module	—	In the engine compartment, left rear, mounted behind X50A Engine Wiring Harness Junction Block	*Engine Compartment Components - Left Rear*	*K17 Electronic Brake Control Module*
K20	Engine Control Module	—	In the engine compartment, left front, behind E13LA Front Headlamp - Left	*Engine Compartment Components - Left (2of2)*	• *K20 Engine Control Module X1 (L5P)* • *K20 Engine Control Module X1 (L8T)* • *K20 Engine Control Module X2 (L5P)* • *K20 Engine Control Module X2 (L8T)* • *K20 Engine Control Module X3 (L5P)* • *K20 Engine Control Module X3 (L8T)*
K29FV	Front Seat Heater Vent Control Module	KA1 / KQV	In the passenger compartment, right front, under the passenger seat cushion	—	• *K29FV Front Seat Heater Vent Control Module X1 (KA1&KQV)* • *K29FV Front Seat Heater Vent Control Module X2 (KA1&KQV)*
K32	Heated Steering Wheel Module	KI3	In the passenger compartment, in the steering wheel, behind the driver air bag	*Steering Wheel Components*	• *K32 Heated Steering Wheel Module X1 (KI3 & N57 & D07)* • *K32 Heated Steering Wheel Module X2 (KI3 - UKL)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
K36	Restraints Control Module	—	In the passenger compartment, bolted to the floor between the front seats or under console if equipped	• *Passenger Compartment - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Left Rear - Regular Cab* • *Passenger Compartment - Right Rear - Double Cab/Crew Cab* • *Passenger Compartment - Right Rear - Regular Cab*	• *K36 Restraints Control Module X1* • *K36 Restraints Control Module X2*
K38	Chassis Control Module	—	Under the vehicle, mounted to the bracket above the spare tire	—	*K38 Chassis Control Module*
K40D	Driver Seat Adjuster Memory Module	A45	In the passenger compartment, left front, mounted to the driver seat, beneath the front of the driver seat cushion	—	• *K40D Driver Seat Adjuster Memory Module X1* • *K40D Driver Seat Adjuster Memory Module X2* • *K40D Driver Seat Adjuster Memory Module X3*
K40P	Passenger Seat Adjuster Memory Module	—	In the passenger compartment, right front, mounted to the passenger seat, beneath the front of the passenger seat cushion	—	• *K40P Passenger Seat Adjuster Memory Module X1 (A45)* • *K40P Passenger Seat Adjuster Memory Module X2 (AVU)* • *K40P Passenger Seat Adjuster Memory Module X3 (AVU&(AHH/AKE))*
K43	Power Steering Control Module	—	Under the vehicle, part of the steering gear assembly	*Underbody Components*	• *K43 Power Steering Control Module X1* • *K43 Power Steering Control Module X2*
K44	Power Takeoff Control Module	—	Under the vehicle, mounted to the left side frame rail, before transmission cross member support	—	• *K44 Power Take-off Control Module X1 (L5P)* • *K44 Power Take-off Control Module X2 (L5P)*
K56	Serial Data Gateway Module	—	In the passenger compartment, left front, between the instrument panel and bulkhead	*Instrument Panel - Rear*	• *K56 Serial Data Gateway Module X1* • *K56 Serial Data Gateway Module X2* • *K56 Serial Data Gateway Module X3*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
K56U	Special Purpose Vehicle Control Module	KGU	In the passenger compartment, left front, between the instrument panel and bulkhead	Instrument Panel - Rear	K56U Special Purpose Vehicle Control Module
K60	Column Lock Module	BTM	In the passenger compartment, left front, mounted on top of the steering column, underneath instrument panel	• Instrument Panel - Rear • Steering Column Components	K60 Column Lock Module
K61	Sunroof Control Module	CF5	In the passenger compartment, front center, above headliner, rear of A103 Roof Console, forward of sunroof	—	K61 Sunroof Control Module (CF5)
K67	Trailer Brake Control Module	JL1	Under the rear of the vehicle, right side, under the cargo box, above the right side of the spare tire	Underbody Components	K67 Trailer Brake Control Module
K68	Trailer Lamp Control Module	U1D	Under the rear of the vehicle, near spare tire	Rear Underbody Components	K68 Trailer Lamp Control Module
K69	Transfer Case Control Module	NP0 / NQH	In the engine compartment, left rear, left of K160 Brake System Control Module	Engine Compartment Components - Left (2of2)	• K69 Transfer Case Control Module (L5P) • K69 Transfer Case Control Module (L8T)
K71	Transmission Control Module	—	In the engine compartment, left front, behind left corner of the radiator	Engine Compartment Components - Top (2of2)	• K71 Transmission Control Module (L5P) • K71 Transmission Control Module (L8T)
K73	Telematic Control Module	UE1	In the passenger compartment, left front, between the instrument panel and bulkhead	Instrument Panel - Rear	• K73 Telematic Control Module X1 • K73 Telematic Control Module X2 • K73 Telematic Control Module X3
K77	Remote Function Actuator Module	—	In the passenger compartment, right rear corner, below headliner	• Passenger Compartment - Right Rear - Double Cab/Crew Cab • Passenger Compartment - Right Rear - Regular Cab	K77 Remote Function Actuator Module
K84	Keyless Entry Control Module	—	In the passenger compartment, left front, between the instrument panel and bulkhead	—	—
K85P	Restraints Occupant Classification System Module - Passenger	—	In the passenger compartment, right front, mounted to the passenger seat, beneath the front of the right front seat cushion	—	K85P Restraints Occupant Classification System Module - Passenger (AL0)
K104D	Front Seat Bladder Control Module - Driver	—	In the passenger compartment, left front, under the driver seat cushion	—	K104D Front Seat Bladder Control Module - Driver

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
K104DP	Front Seat Bladder Control Module - Driver Primary	—	In the passenger compartment, left front, within driver seat back	—	K104DP Front Seat Bladder Control Module - Driver Primary
K104DS	Front Seat Bladder Control Module - Driver Secondary	—	In the passenger compartment, left front, within driver seat back	—	K104DS Front Seat Bladder Control Module - Driver Secondary
K104P	Front Seat Bladder Control Module - Passenger	—	In the passenger compartment, right front, mounted in the passenger seat back	—	K104P Front Seat Bladder Control Module - Passenger (AVU-AKE)
K104PP	Front Seat Bladder Control Module - Passenger Primary	—	In the passenger compartment, right front, within passenger seat back	—	K104PP Front Seat Bladder Control Module - Passenger Primary (AVU&AKE)
K104PS	Front Seat Bladder Control Module - Passenger Secondary	—	In the passenger compartment, right front, within passenger seat back	—	K104PS Front Seat Bladder Control Module - Passenger Secondary (AVU&AKE)
K111	Fuel Pump Power Control Module	—	Under the vehicle, mounted above the driveshaft, inboard of the fuel tank	Underbody Components	• K111 Fuel Pump Power Control Module (FHS) • K111 Fuel Pump Power Control Module (L5P) • K111 Fuel Pump Power Control Module (L5P&N2N) • K111 Fuel Pump Power Control Module (L8T) • K111 Fuel Pump Power Control Module (L8T&N2M) • K111 Fuel Pump Power Control Module (L8T&N2N)
K115	Reductant Control Module	L5P	Under the vehicle, right side, in front of rear axle, mounted to the right side of reductant tank	—	K115 Reductant Control Module (L5P)
K157	Video Processing Module	UV2	In the passenger compartment, right rear, mounted behind the rear seat, below the rear window	Passenger Compartment - Right Rear - Double Cab/Crew Cab	• K157 Video Processing Module X1 (UV2) • K157 Video Processing Module X3 (UV2) • K157 Video Processing Module X4 (UV2) • K157 Video Processing Module X5 (UV2) • K157 Video Processing Module X6 (UV2) • K157 Video Processing Module X7 (UV2)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
K182	Parking Assist Control Module	UD5 / UD7	In the passenger compartment, mounted to the driver side of the rear wall	• Passenger Compartment - Left Rear - Regular Cab • Passenger Compartment - Right Rear - Double Cab/Crew Cab	• K182 Parking Assist Control Module X1 • K182 Parking Assist Control Module X2 • K182 Parking Assist Control Module X3
K194	Rear Gate Module	QT6	At the rear of the vehicle, inside of the endgate, behind trim panel, lower left side	Endgate Components	K194 Rear Gate Module (QK1)
K214	Trailer Tire Pressure Indicator Module	UET	At the rear of the vehicle, mounted to the center of the rear bumper, near X88B Tow Vehicle Electrical Receptacle	• Rear of Vehicle Components • Underbody Components	K214 Trailer Tire Pressure Indicator Module
K219	Lighting Control Module	—	In the passenger compartment, within the instrument panel, left side, mounted in bracket to the left of K9 Body Control Module	—	• K219 Lighting Control Module X1 • K219 Lighting Control Module X2 • K219 Lighting Control Module X3 • K219 Lighting Control Module X4 • K219 Lighting Control Module X5
K221LL	Headlamp LED Driver Module - Left Lower	—	At the left front of the vehicle, mounted to the rear of E13LA Front Headlamp - Left	—	K221LL Headlamp LED Driver Module - Left Lower (T4L)
K221LU	Headlamp LED Driver Module - Left Upper	—	At the left front of the vehicle, mounted to the rear of E13LA Front Headlamp - Left	—	K221LU Headlamp LED Driver Module - Left Upper (T4L)
K221RL	Headlamp LED Driver Module - Right Lower	—	At the right front of the vehicle, mounted to the rear of E13RA Front Headlamp - Right	—	K221RL Headlamp LED Driver Module - Right Lower (T4L)
K221RU	Headlamp LED Driver Module - Right Upper	—	At the right front of the vehicle, mounted to the rear of E13RA Front Headlamp - Right	—	K221RU Headlamp LED Driver Module - Right Upper (T4L)
K234	Rear Seat Heater Vent Control Module	—	In the passenger compartment, under the left rear seat cushion	—	• K234 Rear Seat Heater Vent Control Module X1 (KA6) • K234 Rear Seat Heater Vent Control Module X2 (KA6)
M4P	Programmable Air Inlet Valve Actuator	—	In the passenger compartment, behind the instrument panel glove box	—	M4P Programmable Air Inlet Valve Actuator

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
M6PL	Programmable Temperature Valve Actuator - Left	—	In the passenger compartment, within the instrument panel, left of center, behind front floor console extension panel, mounted to the left side of the HVAC assembly	—	M6PL Programmable Temperature Valve Actuator - Left
M6PR	Programmable Temperature Valve Actuator - Right	—	In the passenger compartment, within the instrument panel, right of center, behind glove box, attached to the HVAC assembly	—	M6PR Programmable Temperature Valve Actuator - Right
M7	Automatic Transmission Shift Lock Control Solenoid	—	In the passenger compartment, right side of the steering wheel, attached to transmission shift lever	—	—
M8	Blower Motor	—	In the passenger compartment, under the right side of the instrument panel, above the hush panel	—	M8 Blower Motor
M10	Charge Air Cooler Coolant Pump	L5P	In the engine compartment, left front, attached to bracket near the front of the left lower control arm	Engine Compartment Components - Top (2of2)	M10 Charge Air Cooler Coolant Pump (L5P)
M14A	Pickup Box Endgate Lock Actuator	QK1	At the rear of the vehicle, within the pickup box endgate, top center of endgate	Endgate Components	M14A Pickup Box Endgate Lock Actuator (QK1)
M26	Front Drive Axle Actuator	NP0 / NQH	Under the vehicle, mounted to the front axle	—	M26 Front Drive Axle Actuator
M37P	Programmable Mode Valve Actuator	—	In the passenger compartment, right front, within instrument panel, attached to HVAC assembly	—	M37P Programmable Mode Valve Actuator
M50D	Front Seat Tilt Adjuster Actuator - Driver	—	In the passenger compartment, under the driver seat	—	• M50D Front Seat Tilt Adjuster Actuator - Driver (A2X&A45) • M50D Front Seat Tilt Adjuster Actuator - Driver (A2X-A45)
M50P	Front Seat Tilt Adjuster Actuator - Passenger	—	In the passenger compartment, under the passenger seat	—	M50P Front Seat Tilt Adjuster Actuator - Passenger
M51D	Front Seat Adjuster Actuator - Driver	—	In the passenger compartment, under the driver seat	—	M51D Front Seat Adjuster Actuator - Driver
M51P	Front Seat Adjuster Actuator - Passenger	—	In the passenger compartment, under the passenger seat	—	M51P Front Seat Adjuster Actuator - Passenger
M53D	Front Seat Back Lumbar Motor - Driver	—	In the passenger compartment, in the center of the driver seat back	—	M53D Front Seat Back Lumbar Motor - Driver
M53P	Front Seat Back Lumbar Motor - Passenger	—	In the passenger compartment, right front, mounted inside of the passenger seat back	—	M53P Front Seat Back Lumbar Motor - Passenger
M55D	Front Seat Vertical Adjuster Actuator - Driver	—	In the passenger compartment, under the driver seat	—	M55D Front Seat Vertical Adjuster Actuator - Driver

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
M55P	Front Seat Vertical Adjuster Actuator - Passenger	—	In the passenger compartment, under the passenger seat	—	*M55P Front Seat Vertical Adjuster Actuator - Passenger*
M56D	Front Seat Recliner Actuator - Driver	—	In the passenger compartment, in the driver seat back	—	*M56D Front Seat Recliner Actuator - Driver (A45)*
M56P	Front Seat Recliner Actuator - Passenger	—	In the passenger compartment, in the passenger seat back	—	*M56P Front Seat Recliner Actuator - Passenger (AKE)*
M63	Rear Sliding Window Motor	A48	In the passenger compartment, mounted to the passenger side of the rear wall, behind the rear seat	*Passenger Compartment - Right Rear - Double Cab/Crew Cab*	*M63 Rear Sliding Window Motor*
M64	Starter	—	(L3B) In the engine compartment, left rear, mounted to rear of engine block	• *Engine Components - Right (L5P)* • *Engine Components - Right Front (L8T)*	• *M64 Starter X1 (L5P)* • *M64 Starter X1 (L8T)* • *M64 Starter X2*
M73A	Front Seat Back Ventilation Blower - Driver	KQV	In the passenger compartment, in the driver seat back	—	*M73A Front Seat Back Ventilation Blower - Driver*
M73B	Front Seat Back Ventilation Blower - Passenger	KQV	In the passenger compartment, in the passenger seat back	—	*M73B Front Seat Back Ventilation Blower - Passenger (KA1&KQV)*
M73D	Front Seat Cushion Ventilation Blower - Driver	KQV	In the passenger compartment, in the passenger seat cushion	—	*M73D Front Seat Cushion Ventilation Blower - Driver (KA1&KQV)*
M73P	Front Seat Cushion Ventilation Blower - Passenger	KQV	In the passenger compartment, right front, mounted in the passenger seat cushion	—	*M73P Front Seat Cushion Ventilation Blower - Passenger (KA1&KQV)*
M74D	Front Side Door Window Regulator Motor - Driver	—	In the passenger compartment, in the driver door	*Driver Door Components*	*M74D Front Side Door Window Regulator Motor - Driver*
M74LR	Rear Side Door Window Regulator Motor - Left	Double Cab / Crew Cab	In the passenger compartment, in the left rear door	—	*M74LR Rear Side Door Window Regulator Motor - Left*
M74P	Front Side Door Window Regulator Motor - Passenger	—	In the passenger compartment, in the passenger door	*Passenger Door Components*	• *M74P Front Side Door Window Regulator Motor - Passenger (AED)* • *M74P Front Side Door Window Regulator Motor - Passenger (AEF)*
M74RR	Rear Side Door Window Regulator Motor - Right	Double Cab / Crew Cab	In the passenger compartment, in the right rear door	—	*M74RR Rear Side Door Window Regulator Motor - Right*
M75	Windshield Wiper Motor	—	Outside the vehicle, at the left rear of the engine compartment, below the left lower corner of the windshield	*Engine Compartment Components - Top (1of2)*	*M75 Windshield Wiper Motor*
M77D	Outside Rearview Mirror Actuator - Driver	—	Outside the vehicle, at the front of the driver door, within the A9A Outside Rearview Mirror - Driver	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
M77P	Outside Rearview Mirror Actuator - Passenger	—	Outside the vehicle, at the front of the passenger door, within the A9B Outside Rearview Mirror - Passenger	—	—
M78D	Outside Rearview Mirror Folding Actuator - Driver	A45	Outside the vehicle, at the front of the driver door, within the A9A Outside Rearview Mirror - Driver	—	—
M78ED	Outside Rearview Mirror Extend Actuator - Driver	—	Outside the vehicle, at the front of the driver door, within the A9A Outside Rearview Mirror - Driver	—	—
M78EP	Outside Rearview Mirror Extend Actuator - Passenger	—	Outside the vehicle, at the front of the passenger door, within the A9B Outside Rearview Mirror - Passenger	—	—
M78P	Outside Rearview Mirror Folding Actuator - Passenger	A45	Outside the vehicle, at the front of the passenger door, within the A9B Outside Rearview Mirror - Passenger	—	—
M95L	Assist Step Motor - Left	BRS	Under the vehicle, along the left frame rail, under the driver door	—	—
M95R	Assist Step Motor - Right	BRS	Under the vehicle, along the right frame rail, under the passenger door	—	—
M96A	Active Grille Air Shutter Actuator 1	VTI	At the front of the vehicle, center, attached to the inside of the front grille	*Front Fascia Components - Inside*	• *M96A Active Grille Air Shutter Actuator 1 (L5P)* • *M96A Active Grille Air Shutter Actuator 1 (L8T)*
M103	Turbocharger Vane Position Actuator	L5P	In the engine compartment, right side, mounted to turbocharger	*Engine Components - Left (L5P)*	*M103 Turbocharger Vane Position Actuator (L5P)*
M104L	Parking Brake Actuator - Left	—	Under the vehicle, left rear, attached to the left rear brake caliper	*Rear Brake and Suspension Components*	*M104L Parking Brake Actuator - Left*
M104R	Parking Brake Actuator - Right	—	Under the vehicle, right rear, attached to the right rear brake caliper	*Rear Brake and Suspension Components*	*M104R Parking Brake Actuator - Right*
M125	Pickup Box Endgate Power Assist Actuator	QT6	Outside of the vehicle, within the endgate, lower right corner	*Endgate Components*	*M125 Pickup Box Endgate Power Assist Actuator (QK1)*
M151L	Pickup Box Endgate Cinch Latch Actuator - Left	QT6	At the rear of the vehicle, within endgate, on the left side	*Endgate Components*	*M151L Pickup Box Endgate Cinch Latch Actuator - Left (QK1)*
M151R	Pickup Box Endgate Cinch Latch Actuator - Right	QT6	At the rear of the vehicle, within endgate, on the right side	*Endgate Components*	*M151R Pickup Box Endgate Cinch Latch Actuator - Right (QK1)*
P13	Horn	—	At the front of the vehicle, right side, mounted to the right front of the radiator core support	*Engine Compartment Components - Top (1of2)*	*P13 Horn*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
P16	Instrument Panel Cluster Control Module	—	In the passenger compartment, in the driver side of the instrument panel	*Instrument Panel - Front*	• *P16 Instrument Panel Cluster Control Module X1* • *P16 Instrument Panel Cluster Control Module X2*
P19AFC	Front Floor Speaker - Console	—	In the passenger compartment, center, beneath floor console	• *Passenger Compartment - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Right Rear - Double Cab/Crew Cab*	*P19AFC Front Floor Speaker - Console*
P19AG	Radio Front Side Door Speaker - Left	—	In the passenger compartment, in the driver door	*Driver Door Components*	*P19AG Radio Front Side Door Speaker - Left*
P19AH	Radio Front Side Door Speaker - Right	—	In the passenger compartment, in the passenger door	*Passenger Door Components*	*P19AH Radio Front Side Door Speaker - Right*
P19AL	Radio Rear Side Door Speaker - Left	—	In the passenger compartment, in the left rear door	—	*P19AL Radio Rear Side Door Speaker - Left*
P19ALU	Radio Rear Side Door Upper Speaker - Left	—	Attached to the left rear door trim panel, towards the front, at the top	—	*P19ALU Radio Rear Side Door Upper Speaker - Left*
P19AM	Radio Rear Side Door Speaker - Right	—	In the passenger compartment, in the right rear door	—	*P19AM Radio Rear Side Door Speaker - Right*
P19AMU	Radio Rear Side Door Upper Speaker - Right	—	Attached to the right rear door trim panel, towards the front, at the top	—	*P19AMU Radio Rear Side Door Upper Speaker - Right*
P19B	Radio Front Center Speaker	—	In the passenger compartment, front center, in the center of the instrument panel, beneath the radio front center speaker grille	—	*P19B Radio Front Center Speaker (UQS)*
P19H	Radio Windshield Side Garnish Molding Speaker - Left Front	—	In the passenger compartment, left front, at a-pillar, behind left front window garnish molding	—	*P19H Radio Windshield Side Garnish Molding Speaker - Left Front (UQA / UQS)*
P19J	Radio Front Speaker - Instrument Panel Left	—	In the passenger compartment, in the top of the left side of the instrument panel	• *Instrument Panel - Front* • *Instrument Panel - Rear*	*P19J Radio Front Speaker - Instrument Panel Left (UQF/ UQS)*
P19V	Radio Windshield Side Garnish Molding Speaker - Right Front	—	In the passenger compartment, right front, at a-pillar, behind right front window garnish molding	—	*P19V Radio Windshield Side Garnish Molding Speaker - Right Front (UQA / UQS)*
P19W	Radio Front Speaker - Instrument Panel Right	—	In the passenger compartment, in the top of the right side of the instrument panel	• *Instrument Panel - Front* • *Instrument Panel - Rear*	*P19W Radio Front Speaker - Instrument Panel Right (UQF/ UQS)*
P29	Head-Up Display	UV6	In the passenger compartment, at the left side of the instrument panel, near the windshield	• *Instrument Panel - Front* • *Instrument Panel - Rear*	• *P29 Head-Up Display X1* • *P29 Head-Up Display X2*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
P34D	Side Object Detection Indicator - Driver	UKC	Outside of the vehicle, left side, part of E17D Outside Rearview Mirror Glass - Driver, within A9A Outside Rearview Mirror - Driver	—	—
P34P	Side Object Detection Indicator - Passenger	UKC	Outside of the vehicle, left side, part of E17P Outside Rearview Mirror Glass - Passenger, within A9B Outside Rearview Mirror - Passenger	—	—
P43	Forward Collision Alert Display	(UHX / UEU) - UV6	In the passenger compartment, in the top of the instrument panel, near the windshield, in front of the driver	• *Instrument Panel - Front* • *Instrument Panel - Rear*	*P43 Forward Collision Alert Display*
P45L	Front Seat Lane Departure Warning Actuator - Left	—	In the passenger compartment, in the left side of the driver seat cushion	—	*P45L Front Seat Lane Departure Warning Actuator - Left*
P45R	Front Seat Lane Departure Warning Actuator - Right	—	In the passenger compartment, in the right side of the driver seat cushion	—	*P45R Front Seat Lane Departure Warning Actuator - Right*
P53	Driver Information Display	IOR	In the passenger compartment, at the center of the instrument panel, above S192 Radio Function Switch	—	• *P53 Driver Information Display X1* • *P53 Driver Information Display X2*
Q2	Air Conditioning Clutch	—	In the engine compartment, left front, part of G1 A/C Compressor	*Engine Components - Right Front (L8T)*	• *Q2 Air Conditioning Clutch (L5P)* • *Q2 Air Conditioning Clutch (L8T)*
Q5	Brake Pressure Modulator Valve	—	In the engine compartment, left rear, mounted behind X50A Engine Wiring Harness Junction Block	—	—
Q6	Camshaft Position Actuator Solenoid Valve	L8T	In the engine compartment, front center, mounted to timing chain cover, above crankshaft harmonic balancer	—	*Q6 Camshaft Position Actuator Solenoid Valve (L84 / L87)*
Q9R	Differential Locking Actuator - Rear	—	Under the vehicle, rear center, mounted to the top left side of the rear differential carrier	—	*Q9R Differential Locking Actuator - Rear*
Q12	Evaporative Emission Canister Purge Solenoid Valve	L8T	In the engine compartment, front center, mounted to intake manifold, to the left of Q38 Throttle Body	*Engine Components - Left Front (L8T)*	*Q12 Evaporative Emission Canister Purge Solenoid Valve (L8T)*
Q13	Evaporative Emission Canister Vent Solenoid Valve	—	On the underbody, at the top left side of the fuel tank	*Fuel Tank Components (L8T)*	*Q13 Evaporative Emission Canister Vent Solenoid Valve (L8T)*
Q14	Exhaust Gas Recirculation Valve	L5P	In the engine comparment, right side, mounted above exhaust manifold	• *Engine Components - Left (L5P)* • *Engine Components - Right Rear (L5P)*	*Q14 Exhaust Gas Recirculation Valve (L5P)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
Q17A	Fuel Injector 1	—	• (L8T) In the engine compartment, underneath intake manifold, next to cylinder 1 intake port on the cylinder head • (L5P) In the engine compartment, center, mounted to valve cover above cylinder 1	*Engine Components - Right Front (L5P)*	• *Q17A Fuel Injector 1 (L5P)* • *Q17A Fuel Injector 1 (L8T)*
Q17B	Fuel Injector 2	—	• (L8T) In the engine compartment, underneath intake manifold, next to cylinder 2 intake port on the cylinder head • (L5P) In the engine compartment, center, mounted to valve cover above cylinder 2	*Engine Components - Left (L5P)*	• *Q17B Fuel Injector 2 (L5P)* • *Q17B Fuel Injector 2 (L8T)*
Q17C	Fuel Injector 3	—	• (L8T) In the engine compartment, underneath intake manifold, next to cylinder 3 intake port on the cylinder head • (L5P) In the engine compartment, center, mounted to valve cover above cylinder 3	*Engine Components - Right Rear (L5P)*	• *Q17C Fuel Injector 3 (L5P)* • *Q17C Fuel Injector 3 (L8T)*
Q17D	Fuel Injector 4	—	• (L8T) In the engine compartment, underneath intake manifold, next to cylinder 4 intake port on the cylinder head • (L5P) In the engine compartment, center, mounted to valve cover above cylinder 4	*Engine Components - Left (L5P)*	• *Q17D Fuel Injector 4 (L5P)* • *Q17D Fuel Injector 4 (L8T)*
Q17E	Fuel Injector 5	—	• (L8T) In the engine compartment, underneath intake manifold, next to cylinder 5 intake port on the cylinder head • (L5P) In the engine compartment, center, mounted to valve cover above cylinder 5	• *Engine Components - Right Rear (L5P)* • *Engine Components - Right Rear (L5P)*	• *Q17E Fuel Injector 5 (L5P)* • *Q17E Fuel Injector 5 (L8T)*
Q17F	Fuel Injector 6	—	• (L8T) In the engine compartment, underneath intake manifold, next to cylinder 6 intake port on the cylinder head • (L5P) In the engine compartment, center, mounted to valve cover above cylinder 6	*Engine Components - Left (L5P)*	• *Q17F Fuel Injector 6 (L5P)* • *Q17F Fuel Injector 6 (L8T)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
Q17G	Fuel Injector 7	—	• (L8T) In the engine compartment, underneath intake manifold, next to cylinder 7 intake port on the cylinder head • (L5P) In the engine compartment, center, mounted to valve cover above cylinder 7	Engine Components - Right Rear (L5P)	• Q17G Fuel Injector 7 (L5P) • Q17G Fuel Injector 7 (L8T)
Q17H	Fuel Injector 8	—	• (L8T) In the engine compartment, underneath intake manifold, next to cylinder 8 intake port on the cylinder head • (L5P) In the engine compartment, center, mounted to valve cover above cylinder 8	Engine Components - Left (L5P)	• Q17H Fuel Injector 8 (L5P) • Q17H Fuel Injector 8 (L8T)
Q18A	Fuel Pressure Regulator 1	L5P	In the engine compartment, left rear side of engine, below Q18C Fuel Pressure Regulator 3, attached to G18 High Pressure Fuel Pump	Engine Components - Top (L5P)	Q18A Fuel Pressure Regulator 1 (L5P)
Q18B	Fuel Pressure Regulator 2	L5P	In the engine compartment, left side of engine, mounted to the left rear side of the valve cover	Engine Components - Left (L5P)	Q18B Fuel Pressure Regulator 2 (L5P)
Q20	Intake Airflow Control Valve	L5P	In the engine compartment, at the front of the engine, mounted to the intake manifold inlet	Engine Components - Left (L5P)	Q20 Intake Airflow Control Valve (L5P)
Q32P	Shift Solenoid Valve - Power Take-Off	—	Under the vehicle, mounted to the left side framee rail	—	Q32P Shift Solenoid Valve - Power Take-Off (L5P)
Q38	Throttle Body	—	In the engine compartment, at the front of the engine, mounted to the intake manifold inlet	• Engine Components - Left Front (L8T) • Engine Components - Right Front (L8T)	Q38 Throttle Body (L8T)
Q44	Engine Oil Pressure Control Solenoid Valve	—	In the engine compartment, at the front of the engine, behind the front cover	—	Q44 Engine Oil Pressure Control Solenoid Valve (L8T)
Q46	Air Conditioning Compressor Solenoid Valve	—	In the engine compartment, left front, part of G1 A/C Compressor	Engine Components - Right Front (L8T)	• Q46 Air Conditioning Compressor Solenoid Valve (L5P) • Q46 Air Conditioning Compressor Solenoid Valve (L8T)
Q47	Exhaust Gas Recirculation Cooler Bypass Solenoid Valve	—	In the engine compartment, right side, mounted on top of engine	Engine Components - Right Rear (L5P)	Q47 Exhaust Gas Recirculation Cooler Bypass Solenoid Valve (L5P)
Q61	Reductant Fluid Injector	L5P	In the engine compartment, right front, mounted to the exhaust, in front of diesel particulate filter	Engine Components - Right (L5P)	Q61 Reductant Fluid Injector (L5P)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
Q64	Evaporative Emission System Switching Valve	L8T	Under the vehicle, on top of primary fuel tank	Fuel Tank Components (L8T)	Q64 Evaporative Emission System Switching Valve
Q67	Exhaust Aftertreatment Fuel Injector	—	Under the vehicle, attached to the exhaust pipe, at the middle of the diesel particulate filter	—	• Q67 Exhaust Aftertreatment Fuel Injector - Chassis Cab • Q67 Exhaust Aftertreatment Fuel Injector - without Chassis Cab
Q77A	Transmission Control Solenoid Valve 1	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77A Transmission Control Solenoid Valve 1 (MGM / MGU / MKM)
Q77B	Transmission Control Solenoid Valve 2	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77B Transmission Control Solenoid Valve 2 (MGM / MGU / MKM)
Q77C	Transmission Control Solenoid Valve 3	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77C Transmission Control Solenoid Valve 3 (MGM / MGU / MKM)
Q77D	Transmission Control Solenoid Valve 4	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77D Transmission Control Solenoid Valve 4 (MGM / MGU / MKM)
Q77E	Transmission Control Solenoid Valve 5	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77E Transmission Control Solenoid Valve 5 (MGM / MGU / MKM)
Q77F	Transmission Control Solenoid Valve 6	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77F Transmission Control Solenoid Valve 6 (MGM / MGU / MKM)
Q77G	Transmission Control Solenoid Valve 7	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77G Transmission Control Solenoid Valve 7 (MGM / MGU / MKM)
Q77H	Transmission Control Solenoid Valve 8	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77H Transmission Control Solenoid Valve 8 (MGM / MGU / MKM)
Q77J	Transmission Control Solenoid Valve 9	—	Under the vehicle, inside the T12 Automatic Transmission	—	Q77J Transmission Control Solenoid Valve 9 (MGM / MGU / MKM)
Q85	Cooling Fan Clutch	—	In the engine compartment, front of engine, attached to fan	—	Q85 Cooling Fan Clutch
R6A	Terminating Resistor - High Speed Bus	UKL / (- UKC - UKV)	At the rear of the vehicle, attached to the inside of the rear bumper	Rear of Vehicle - Rear Object Alarm Sensor Harness	R6A Terminating Resistor - High Speed Bus
R12	Power Take-Off Switch Diode	—	In the passenger compartment, behind the middle of the instrument panel	—	R12 Power Take-Off Switch Diode (PTO)
R29	Fuel Filter	L5P	Under the vehicle, right center, mounted to the right inboard side of the frame rail, forward of B47 Fuel Pressure Sensor	Underbody Components	R29 Fuel Filter (L5P)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
R55	Fuel Pump Module Diode	—	Under the vehicle, inside chassis harness, near K111 Fuel Pump Power Control Module	—	—
S2	Automatic Transmission Manual Shift Shaft Position Switch	MQE	Underneath the vehicle, within T12 Automatic Transmission	—	*S2 Automatic Transmission Manual Shift Shaft Position Switch (MHT / MQB)*
S3	Automatic Transmission Control	—	In the passenger compartment, mounted to the steering column	—	*S3 Automatic Transmission Control*
S3C	Automatic Transmission Control Lever	MHT / MQB / MQE	In the passenger compartment, left front, on the steering column shifter	*Instrument Panel - Front*	*S3C Automatic Transmission Control Lever*
S13D	Door Lock Switch - Driver	—	In the passenger compartment, in the driver door handle trim panel	—	• *S13D Door Lock Switch - Driver (DLN/DBG/DWI/DZC)* • *S13D Door Lock Switch - Driver (-DLN/DBG/DWI/DZC)*
S13P	Door Lock Switch - Passenger	—	In the passenger compartment, in the passenger door handle trim panel	—	• *S13P Door Lock Switch - Passenger (DLN/DBG/DWI/DZC)* • *S13P Door Lock Switch - Passenger (-DLN/DBG/DWI/DZC)*
S25	Garage Door Opener Transmitter	—	In the passenger compartment, front center, part of A103 Roof Console	—	—
S27	Head-Up Display Switch	UV6	In the passenger compartment, left front, left of the steering column, in the instrument panel	*Instrument Panel - Front*	*S27 Head-Up Display Switch*
S30	Headlamp Switch	—	In the passenger compartment, left of the steering column, in the instrument panel	*Instrument Panel - Front*	*S30 Headlamp Switch*
S32R	Rear Seat Heater Switch	KA6	In the passenger compartment, center, on the rear of the floor console	*Floor Console Components 1 of 2*	*S32R Rear Seat Heater Switch*
S33	Steering Wheel Horn Contact	—	In the passenger compartment, in the center of the steering wheel, behind the driver side air bag	*Steering Wheel Components*	*S33 Steering Wheel Horn Contact (NK5)*
S38	On/Off Vehicle Switch	BTM	In the passenger compartment, right of the steering column, in the instrument panel	—	*S38 On/Off Vehicle Switch*
S47D	Front Seat Adjuster Memory Switch - Driver	—	In the passenger compartment, left front, on the driver door panel forward of the inside driver door handle	—	*S47D Front Seat Adjuster Memory Switch - Driver*
S51	Communication Center Call Switch	UE1	In the passenger compartment, part of the inside rearview mirror	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
S64D	Front Seat Adjuster Switch - Driver	—	In the passenger compartment, mounted to the outboard side of the driver seat cushion	—	• *S64D Front Seat Adjuster Switch - Driver (A45)* • *S64D Front Seat Adjuster Switch - Driver (AZX-A45)*
S64P	Front Seat Adjuster Switch - Passenger	—	In the passenger compartment, mounted to the outboard side of the passenger seat cushion	—	• *S64P Front Seat Adjuster Switch - Passenger (A7K)* • *S64P Front Seat Adjuster Switch - Passenger (AVU&(AHH/AKE))*
S65D	Front Seat Lumbar Switch - Driver	A2X	In the passenger compartment, mounted to the outboard side of the driver seat cushion	—	• *S65D Front Seat Lumbar Switch - Driver (A45)* • *S65D Front Seat Lumbar Switch - Driver (AVK)*
S65P	Front Seat Lumbar Switch - Passenger	A7K	In the passenger compartment, mounted to the outboard side of the passenger seat cushion	—	• *S65P Front Seat Lumbar Switch - Passenger (-(AKE/AVU))* • *S65P Front Seat Lumbar Switch - Passenger (A7K-AVU)* • *S65P Front Seat Lumbar Switch - Passenger (AKE&AVU)*
S70E	Radio Favorites Switch - Steering Wheel	—	In the passenger compartment, on the left rear side of the steering wheel	—	*S70E Radio Favorites Switch - Steering Wheel (UK3)*
S70F	Radio Volume Switch - Steering Wheel	—	In the passenger compartment, on the right rear side of the steering wheel	—	*S70F Radio Volume Switch - Steering Wheel (UK3)*
S70L	Cruise Control Switch	—	In the passenger compartment, on the left side of the steering wheel	*Steering Wheel Components*	*S70L Cruise Control Switch (KI3)*
S70R	Radio Control Switch - Steering Wheel	—	In the passenger compartment, on the right side of the steering wheel	*Steering Wheel Components*	*S70R Radio Control Switch - Steering Wheel (UK3)*
S76	Trailer Brake Control Switch	—	In the passenger compartment, center of the instrument panel, below S48C Multifunction Switch 1 - Instrument Panel	*Instrument Panel - Front*	• *S76 Trailer Brake Control Switch (GFY/GFG/GFW/GA4)* • *S76 Trailer Brake Control Switch (-(GFY / GFG / GFW / GA4))*
S78	Turn Signal Switch	—	In the passenger compartment, on the left side of the steering column	*Instrument Panel - Front*	*S78 Turn Signal Switch*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
S79D	Front Side Door Window Control Switch - Driver	—	In the passenger compartment, behind the driver door trim panel, center of the door	—	• *S79D Front Side Door Window Control Switch - Driver X1* • *S79D Front Side Door Window Control Switch - Driver X2*
S79LR	Rear Side Door Window Switch - Left	—	In the passenger compartment, at the center of the left rear door, on the door trim panel	—	*S79LR Rear Side Door Window Switch - Left*
S79P	Front Side Door Window Switch - Passenger	—	In the passenger compartment, on the passenger door trim panel, center of the door	—	• *S79P Front Side Door Window Switch - Passenger X1* • *S79P Front Side Door Window Switch - Passenger X2*
S79RR	Rear Side Door Window Switch - Right	—	In the passenger compartment, on the right rear door trim panel, center of the door	—	*S79RR Rear Side Door Window Switch - Right*
S86	Vehicle Stability Control System Switch	—	In the passenger compartment, front center, attached to instrument panel, between S171L Instrument Panel Center Accessory Function Switch - Left and S171R Instrument Panel Center Accessory Function Switch - Right	—	*S86 Vehicle Stability Control System Switch*
S91	Parking Brake Control Switch	—	In the passenger compartment, left front, mounted to the left side of the instrument panel bezel, left of S126 Ride Control Switch	*Instrument Panel - Front*	*S91 Parking Brake Control Switch*
S126	Ride Control Switch	URC	In the passenger compartment, left front, left side of the instrument panel, above S30 Headlamp Switch	—	*S126 Ride Control Switch*
S158	Liftgate Exterior Release Switch - Auxiliary Endgate	—	At the rear of the vehicle, mounted to the rear of the pickup box endgate, top center of the endgate	*Rear of Vehicle Components*	*S158 Liftgate Exterior Release Switch - Auxiliary Endgate (QK2)*
S159E	Liftgate Exterior Release Switch - Endgate	QT6 / QK2	Outside of the vehicle, at the rear of the vehicle, on the endgate	• *Endgate Components* • *Rear of Vehicle Components*	• *S159E Liftgate Exterior Release Switch - Endgate (QK1)* • *S159E Liftgate Exterior Release Switch - Endgate (QK2)*
S171L	Instrument Panel Center Accessory Function Switch - Left	—	In the passenger compartment, mounted to the instrument panel, beneath A26 HVAC Controls, left switch bank	—	*S171L Instrument Panel Center Accessory Function Switch - Left*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
S171R	Instrument Panel Center Accessory Function Switch - Right	—	In the passenger compartment, mounted to the instrument panel, beneath A26 HVAC Controls, right switch bank	*Instrument Panel - Front*	*S171R Instrument Panel Center Accessory Function Switch - Right*
S172	Auxiliary Multifunction Switch	9L7	In the passenger compartment, mounted to the instrument panel	—	*S172 Auxiliary Multifunction Switch*
S192	Radio Function Switch	IOR	In the passenger compartment, at the center of the instrument panel, below P53 Driver Information Display	—	*S192 Radio Function Switch (IOR)*
T1	DC/AC Converter Control Module	KI4 / KI5	In the passenger compartment, rear center, mounted to the rear wall	• *Passenger Compartment - Left Rear - Regular Cab* • *Passenger Compartment - Right Rear - Double Cab/Crew Cab* • *Passenger Compartment - Right Rear - Regular Cab*	• *T1 DC/AC Converter Control Module X1* • *T1 DC/AC Converter Control Module X2*
T3	Audio Amplifier	UQA	In the rear passenger compartment, mounted behind the rear seat, below the rear window	*Passenger Compartment - Right Rear - Double Cab/Crew Cab*	• *T3 Audio Amplifier X1* • *T3 Audio Amplifier X2* • *T3 Audio Amplifier X3*
T4M	Radio Antenna	—	Outside the vehicle, at the right rear of the hood	*Front of Vehicle Components*	*T4M Radio Antenna*
T4P	High Frequency Antenna	—	Outside of the vehicle	*Front of Vehicle Components*	• *T4P High Frequency Antenna X1 (IOK - UE1)* • *T4P High Frequency Antenna X1 (UE1)* • *T4P High Frequency Antenna X2 (IOK & U2K)*
T4S	Wireless Communication Antenna - Bluetooth	—	Outside the vehicle, at the rear of the right front fender	—	—
T4TA	Auxiliary Wireless Communication Interface Antenna	—	In the passenger compartment, front center, below instrument panel upper trim panel, behind HVAC vent	*Instrument Panel - Rear*	*T4TA Auxiliary Wireless Communication Interface Antenna*
T8A	Ignition Coil 1	L8T	In the engine compartment, at the top of the engine, above cylinder 1	*Engine Components - Left Front (L8T)*	*T8A Ignition Coil 1 (L8T)*
T8B	Ignition Coil 2	L8T	In the engine compartment, at the top of the engine, above cylinder 2	*Engine Components - Right Front (L8T)*	*T8B Ignition Coil 2 (L8T)*
T8C	Ignition Coil 3	L8T	In the engine compartment, at the top of the engine, above cylinder 3	*Engine Components - Left Front (L8T)*	*T8C Ignition Coil 3 (L8T)*
T8D	Ignition Coil 4	L8T	In the engine compartment, at the top of the engine, above cylinder 4	*Engine Components - Right Front (L8T)*	*T8D Ignition Coil 4 (L8T)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
T8E	Ignition Coil 5	L8T	In the engine compartment, at the top of the engine, above cylinder 5	Engine Components - Left Front (L8T)	T8E Ignition Coil 5 (L8T)
T8F	Ignition Coil 6	L8T	In the engine compartment, at the top of the engine, above cylinder 6	Engine Components - Right Front (L8T)	T8F Ignition Coil 6 (L8T)
T8G	Ignition Coil 7	L8T	In the engine compartment, at the top of the engine, above cylinder 7	Engine Components - Left Front (L8T)	T8G Ignition Coil 7 (L8T)
T8H	Ignition Coil 8	L8T	In the engine compartment, at the top of the engine, above cylinder 8	Engine Components - Right Front (L8T)	T8H Ignition Coil 8 (L8T)
T10G	Low Frequency Rear Bumper Antenna	—	At the rear of the vehicle, center, mounted to the inside of the rear bumper	• Rear of Vehicle Components • Underbody Components	T10G Low Frequency Rear Bumper Antenna
T10J	Low Frequency Instrument Panel Antenna	(- D07)	In the passenger compartment, front center, within instrument panel, forward of radio control	—	T10J Low Frequency Instrument Panel Antenna
T10KA	Low Frequency Console Number 2 Antenna	D07	In the passenger compartment, center, inside the floor console, beneath the cupholders at the rear	Floor Console Components 2 of 2	T10KA Low Frequency Console Number 2 Antenna
T10M	Low Frequency Front Side Door Outside Handle Antenna - Left	—	Outside of the vehicle, left side, within A24D Front Side Door Outside Handle - Left	—	—
T10N	Low Frequency Front Side Door Outside Handle Antenna - Right	—	Outside of the vehicle, right side, within A24P Front Side Door Outside Handle - Right	—	—
T10UA	Low Frequency Console Antenna	—	In the passenger compartment, under floor console	Floor Console Components 1 of 2	• T10UA Low Frequency Console Antenna (AZ3) • T10UA Low Frequency Console Antenna (D07)
T12	Automatic Transmission	—	Under the vehicle, mounted to the rear of the engine	Transfer Case Components	• T12 Automatic Transmission X1 (L5P) • T12 Automatic Transmission X1 (L8T) • T12 Automatic Transmission X2 (MGM / MGU / MKM) • T12 Automatic Transmission X3 (MGM / MGU / MKM)
T19	Multifunction Power Supply Converter	—	In the passenger compartment, right front, between the instrument panel and bulkhead	—	—
T22	Wireless Accessory Charging Module	K4C	In the passenger compartment, forward of center, in the floor console bin lid.	Floor Console Components 1 of 2	T22 Wireless Accessory Charging Module

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
W1	Blunt Cut - Camper/5th Wheel Provision	—	On the vehicle exterior, at the rear of the vehicle, left of the license plate	—	—
W11	Blunt Cut - Emergency Vehicle Roof Lamp	9L7	In the passenger compartment, rear center, above headliner, near inline connector X371	—	—
W24	Blunt Cut - Trailer Brakes Provision	Z82 - JL1	In the passenger compartment, under left side of the instrument panel	—	—
W30	Blunt Cut - Snow Plow	VYU	Accessory Package Component - Location on vehicle may vary per installation	—	—
X50A	Engine Wiring Harness Junction Block	—	In the engine compartment, right front, in front of C1 Battery	• *Engine Compartment Components - Left (1of2)* • *Engine Compartment Components - Top (1of2)* • *Engine Compartment Components - Top (2of2)*	*Electrical Center Identification Views on page 7-6*
X50B	Battery Distribution Engine Compartment Fuse Block	—	In the engine compartment, right rear, on top of C1 Battery	• *Engine Compartment Components - Left (1of2)* • *Engine Compartment Components - Top (1of2)*	*Electrical Center Identification Views on page 7-6*
X50EA	Battery Distribution Fuse Block - Auxiliary	—	In the engine compartment, left, on top of C1B Auxiliary Battery	—	*Electrical Center Identification Views on page 7-6*
X51AX	Instrument Panel Wiring Harness Junction Block - Auxiliary	9L7	In the passenger compartment, left front, within instrument panel, forward of driver trim panel	—	*Electrical Center Identification Views on page 7-6*
X51R	Instrument Panel Wiring Harness Junction Block - Right	—	In the passenger compartment, right side of the instrument panel, behind side trim panel	*Instrument Panel - Right*	*Electrical Center Identification Views on page 7-6*
X53AF	Body Wiring Harness Junction Block	—	In the passenger compartment, left side of the instrument panel, behind the instrument panel fuse block access hole cover	—	*Electrical Center Identification Views on page 7-6*
X54	Accessory Wiring Junction Block - Snow Plow	—	Accessory Package Component - Location on vehicle may vary per installation	—	*Electrical Center Identification Views on page 7-6*
X55SP	Wiring Harness Fuse Holder - Snow Plow	VYU	Accessory Package Component - Location on vehicle may vary per installation	—	*Electrical Center Identification Views on page 7-6*
X79A	Configurable/Accessory Provision Supply Connector	9L7	In the passenger compartment, left front, within instrument panel, forward of driver trim panel, taped to Instrument Panel Wiring Harness Junction Block - Auxiliary harness	—	*Electrical Center Identification Views on page 7-6*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X80G	Accessory Power Receptacle - Instrument Panel	—	In the passenger compartment, front center, in the instrument panel, beneath A26 HVAC Controls	—	*X80G Accessory Power Receptacle - Instrument Panel*
X81ACA	Front Floor Console Accessory Power Rear Receptacle - 110V AC	KI4 & D07	In the passenger compartment, center, mounted to the rear of the floor console	*Floor Console Components 1 of 2*	• *X81ACA Front Floor Console Accessory Power Rear Receptacle - 110V AC (KI4)* • *X81ACA Front Floor Console Accessory Power Rear Receptacle - 110V AC (KI4 & D07)*
X81AI	Accessory Power Receptacle - Instrument Panel 110V AC	KI4 - AZ3 - D07	In the passenger compartment, front center, in the instrument panel, beneath S171R Instrument Panel Center Accessory Function Switch - Right	—	*X81AI Accessory Power Receptacle - Instrument Panel 110V AC (KI4)*
X81AP	Pickup Box Accessory Power Receptacle - 110V AC	KC9	Outside of the vehicle, right rear corner of the truck bed	—	*X81AP Pickup Box Accessory Power Receptacle - 110V AC (KC9)*
X81BCA	Front Floor Console Accessory Power Rear Receptacle - 220V AC	KI5 & D07	In the passenger compartment, center, mounted to the rear of the floor console	—	• *X81BCA Front Floor Console Accessory Power Rear Receptacle - 220V AC (KI5)* • *X81BCA Front Floor Console Accessory Power Rear Receptacle - 220V AC (KI5 & D07)*
X81BI	Accessory Power Receptacle - Instrument Panel 220V AC	KI4 - AZ3 - D07	In the passenger compartment, front center, in the instrument panel, beneath S171R Instrument Panel Center Accessory Function Switch - Right	—	• *X81BI Accessory Power Receptacle - Instrument Panel 220V AC (KI5)* • *X81BI Accessory Power Receptacle - Instrument Panel 220V AC (KCA)*
X81BP	Pickup Box Accessory Power Receptacle - 220V AC	KCA	Outside of the vehicle, right rear corner of the truck bed	—	*X81BP Pickup Box Accessory Power Receptacle - 220V AC (KCA)*
X81FSA	Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC	AZ3 & KI4	In the passenger compartment, center, mounted to the lower rear portion of the front center seat	—	• *X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC (KI4)* • *X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC (KI4 & AZ3)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X81FSB	Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC	AZ3 & KI5	In the passenger compartment, center, mounted to the lower rear portion of the front center seat	—	• *X81FSB Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC (KI5)* • *X81FSB Accessory Power Receptacle - Front Center Seat Rear Cover 220V AC (KI5 & D07)*
X83B	Audio/Video Receptacle	UBC	In the passenger compartment, front center, inside of the floor console bin, left front	*Floor Console Components 1 of 2*	• *X83B Audio/Video Receptacle X1* • *X83B Audio/Video Receptacle X2* • *X83B Audio/Video Receptacle X3*
X84	Data Link Connector	—	In the passenger compartment, at the bottom of the driver side of the instrument panel	*Instrument Panel - Front*	*X84 Data Link Connector*
X85	Steering Wheel Airbag Coil	—	In the passenger compartment, behind the steering wheel	*Steering Column Components*	• *X85 Steering Wheel Airbag Coil X1* • *X85 Steering Wheel Airbag Coil X2*
X88B	Tow Vehicle Electrical Receptacle	—	At the rear of the vehicle, forward of the rear bumper fascia trailer hitch cover, to the left of the hitch	*Rear of Vehicle Components*	• *X88B Tow Vehicle Electrical Receptacle X1* • *X88B Tow Vehicle Electrical Receptacle X2* • *X88B Tow Vehicle Electrical Receptacle X3*
X88GB	Tow Vehicle Electrical Receptacle - 5th Wheel/Camper	—	Rear of vehicle, mounted on left rear lower corner, of truck bed	—	*X88GB Tow Vehicle Electrical Receptacle - 5th Wheel/Camper*
X92CD	Dual Charge Only Receptacle - Floor Console Rear	D07 & UBI	In the passenger compartment, center, mounted to the rear of the floor console	*Floor Console Components 2 of 2*	*X92CD Dual Charge Only Receptacle - Floor Console Rear*
X92CF	USB 2 Port Receptacle - Floor Console Front	—	In the passenger compartment, front center, in console, forward and to the left of the cup holders	—	• *X92CF USB 2 Port Receptacle - Floor Console Front X1* • *X92CF USB 2 Port Receptacle - Floor Console Front X2*
X92FSR	Dual Charge Only Receptacle - Front Center Seat Rear Cover	AZ3 & UBI	In the passenger compartment, center, mounted to the lower rear portion of the front center seat	—	*X92FSR Dual Charge Only Receptacle - Front Center Seat Rear Cover*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X92IP	USB 2 Port Receptacle - Instrument Panel	—	In the passenger compartment, front center of instrument panel, mounted to the right side of the instrument panel accessory bezel	*Instrument Panel - Front*	• *X92IP USB 2 Port Receptacle - Instrument Panel X1* • *X92IP USB 2 Port Receptacle - Instrument Panel X2* • *X92IP USB 2 Port Receptacle - Instrument Panel X3*
X112	Engine Wiring Harness Chassis to Cooling Fan Harness	L5P	At the front of the vehicle, left side, near crankshaft pulley	*Engine Compartment - Engine Wiring Harness - Left Front (L5P)*	*X112 Engine Wiring Harness Chassis to Cooling Fan Harness (L5P)*
X122	Front View Camera Switch Wiring Harness to Body Wiring Harness	UV2	At the front of the vehicle, right side, between the right side of the radiator core support and E13RA Front Headlamp - Right	*Engine Compartment - Body Wiring Harness - Front*	*X122 Front View Camera Switch Wiring Harness to Body Wiring Harness*
X125	Body Wiring Harness to Engine Wiring Harness	—	In the engine compartment, left front, near air box	• *Engine Compartment - Body Wiring Harness - Front* • *Engine Compartment - Body Wiring Harness - Left* • *Engine Compartment - Engine Wiring Harness - Left Front (L5P)* • *Engine Compartment - Engine Wiring Harness - Right Front (L8T)*	• *X125 Body Wiring Harness to Engine Wiring Harness Chassis (L5P)* • *X125 Body Wiring Harness to Engine Wiring Harness Chassis (L8T)*
X128	Engine Wiring Harness to Camshaft Position Sensor Harness	L8T	In the engine compartment, left front, near the front of the bank 1 cylinder head	*Engine Compartment - Engine Wiring Harness - Right Front (L8T)*	*X128 Engine Wiring Harness to Camshaft Position Sensor Harness (L8T)*
X129	Camshaft Position Sensor Harness to Engine Oil Pressure Control Harness	L8T / L5P	Under the vehicle, in right front wheel well, near frame rail	—	*X129 Camshaft Position Sensor Harness to Engine Oil Pressure Control Harness (L8T)*
X135	Engine Wiring Harness to Auxilliary Battery Wiring Harness	—	In the engine compartment, left side of engine compartmetn by battery	*Engine Compartment - Engine Wiring Harness - Right Front (L8T)*	*X135 Engine Wiring Harness to Auxiliary Battery Wiring Harness (L8T)*
X150	Front Object Alarm Sensor Wiring Harness to Body Wiring Harness	UKL	At the front of the vehicle, right side, between the lower right side of the radiator core support and E13RA Front Headlamp - Right	• *Engine Compartment - Body Wiring Harness - Front* • *Front of Vehicle - Front Object Alarm Sensor Wiring Harness*	*X150 Front Object Alarm Sensor Wiring Harness to Body Wiring Harness*
X160	Engine Wiring Harness to Fuel Injector Wiring Harness - Left	L8T	In the engine compartment, rear of the engine near the top center	*Engine Compartment - Engine Wiring Harness - Left Rear (L8T)*	*X160 Engine Wiring Harness to Fuel Injector Wiring Harness - Left (L8T)*
X161	Engine Wiring Harness to Fuel Injector Wiring Harness - Right	L8T	In the engine compartment, rear of the engine near the top right	*Engine Compartment - Engine Wiring Harness - Left Rear (L8T)*	*X161 Engine Wiring Harness to Fuel Injector Wiring Harness - Right (L8T)*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X175P	Engine Wiring Harness Chassis to PTO Harness	—	Under the vehicle, mounted to left front of transmission	—	X175P Engine Wiring Harness Chassis to PTO Harness (L5P)
X176	Transmission Case Harness to Transmission Control Harness	—	Under the vehicle, inside the T12 Automatic Transmission	—	X176 Transmission Case Harness to Transmission Control Harness (MGM / MGU / MKM)
X210	Instrument Panel Wiring Harness to Body Wiring Harness	—	In the passenger compartment, left front, behind the left front trim panel beneath the A-pillar	• Instrument Panel Wiring Harness • Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab	X210 Instrument Panel Wiring Harness to Body Wiring Harness
X211	Instrument Panel Wiring Harness to Body Wiring Harness	—	In the passenger compartment, right front, below passenger a-pillar, behind passenger trim panel	• Instrument Panel Wiring Harness • Instrument Panel Wiring Harness - Right • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	X211 Instrument Panel Wiring Harness to Body Wiring Harness
X213	Auxiliary Fuse Block Wiring Harness to Instrument Panel Wiring Harness	—	In the passenger compartment, left front, behind the left side of instrument panel	Instrument Panel Wiring Harness	• X213 Auxiliary Fuse Block Wiring Harness to Instrument Panel Wiring Harness (9L7) • X213 Trailer Wiring Harness Extension Harness to Instrument Panel Wiring Harness (-JL1&Z82)
X217	Body Wiring Harness to Instrument Panel Wiring Harness	—	In the passenger compartment, right front, below passenger a-pillar, behind passenger trim panel	• Instrument Panel Wiring Harness - Right • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	X217 Body Wiring Harness to Instrument Panel Wiring Harness (UVB)
X218	Instrument Panel Wiring Harness to Body Wiring Harness	—	In the passenger compartment, right front, below passenger a-pillar, behind passenger trim panel	• Instrument Panel Wiring Harness - Right • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	X218 Instrument Panel Wiring Harness to Body Wiring Harness (IOK)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X226	Front Floor Console Wiring Harness to Instrument Panel Wiring Harness	D07	In the passenger compartment, front center, beneath right front side of floor console	• Center Console - Front Floor Console Wiring Harness • Instrument Panel Wiring Harness	• X226 Front Floor Console Wiring Harness to Instrument Panel Wiring Harness (UB-C&UBD) • X226 Front Floor Console Wiring Harness to Instrument Panel Wiring Harness (UB-C-UBD)
X227	Front Floor Console Wiring Harness to Body Wiring Harness	D07	In the passenger compartment, center, beneath right rear of floor console	• Center Console - Front Floor Console Wiring Harness • Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	• X227 Front Floor Console Wiring Harness to Body Wiring Harness (D07) • X227 Front Seat Wiring Harness - Center to Body Wiring Harness (-D07)
X237	Instrument Panel Wiring Harness to Instument Panel Airbag Harness	—	In the passenger compartment, right front, within instrument panel, near right side of instrument panel tie bar	—	X237 Instrument Panel Wiring Harness to Instument Panel Airbag Harness
X250	Instrument Panel Wiring Harness to Heater Wiring Harness	—	In the passenger compartment, right front, at the bottom of the A-pillar, behind passenger kick panel	Instrument Panel Wiring Harness	X250 Instrument Panel Wiring Harness to Heater Wiring Harness
X251	Auxiliary Heater Wiring Harness to Body Wiring Harness	C32	In the passenger compartment, right front, behind passenger front kick panel	• Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	X251 Auxiliary Heater Wiring Harness to Body Wiring Harness
X309A	Body Wiring Harness to Inside Rearview Mirror Wiring Harness	—	In the passenger compartment, left rear, above the headliner	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab	X309A Body Wiring Harness to Inside Rearview Mirror Wiring Harness (UVN)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X324	Body Wiring Harness to Body Rear Wiring Harness Extension Harness	KI5	In the passenger compartment, rear center, beneath rear window	*Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab*	*X324 Body Wiring Harness to Body Rear Wiring Harness Extension Harness*
X331	Front Seat Wiring Harness - Driver to Body Wiring Harness	—	In the passenger compartment, left side, beneath driver seat	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	*X331 Front Seat Wiring Harness - Driver to Body Wiring Harness*
X336	Front Seat Wiring Harness - Passenger to Body Wiring Harness	—	In the passenger compartment, right side, beneath passenger seat	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	*X336 Front Seat Wiring Harness - Passenger to Body Wiring Harness*
X340	Body Wiring Harness to Rear Seat Heater Control Wiring Harness	KA6	In the passenger compartment, left rear, behind rear seat, beneath rear window	• *Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	*X340 Body Wiring Harness to Rear Seat Heater Control Wiring Harness*
X360	Chassis Wiring Harness to Fuel Pump Power Control Module Harness	—	Under the vehicle, near the fuel pump and level sensor assembly	—	*X360 Chassis Wiring Harness to Fuel Pump Power Control Module Harness*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X370A	Dome Lamp Wiring Harness to Instrument Panel Wiring Harness	GFF / GFI	In the passenger compartment, left rear, at the rear wall, behind the rear seat	• *Instrument Panel Wiring Harness* • *Roof - Dome Lamp Wiring Harness - Double Cab*	*X370A Dome Lamp Wiring Harness to Instrument Panel Wiring Harness*
X370B	Dome Lamp Wiring Harness to Instrument Panel Wiring Harness	-GFF / GFI	In the passenger compartment, left rear, at the rear wall, behind the rear seat	—	*X370B Dome Lamp Wiring Harness to Instrument Panel Wiring Harness*
X371A	Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness	—	In the passenger compartment, left rear, above the headliner	*Roof - Dome Lamp Wiring Harness - Double Cab*	*X371A Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness*
X371A_UVO	Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness	—	In the passenger compartment, left rear, above the headliner	—	*X371A_UVO Inside Rearview Mirror Wiring Harness to Dome Lamp Wiring Harness*
X375	Sunroof Jumper Harness to Dome Lamp Wiring Harness	CF5	In the passenger compartment, front center, above headliner, above A103 Roof Console	—	*X375 Sunroof Jumper Harness to Dome Lamp Wiring Harness*
X382	Headlamp Automatic Control Ambient Light Sensor Wiring Harness to Dome Lamp Wiring Harness	ASV	In the passenger compartment, front center, forward of A103 Roof Console	*Roof - Dome Lamp Wiring Harness - Double Cab*	*X382 Headlamp Automatic Control Ambient Light Sensor Wiring Harness to Dome Lamp Wiring Harness*
X401	Chassis Wiring Harness to Engine Wiring Harness Chassis	L5P	In the engine compartment, left front, inboard of left frame rail, near engine cross member	• *Engine Compartment - Engine Wiring Harness - Left Front (L5P)* • *Engine Compartment - Engine Wiring Harness - Right Front (L8T)*	• *X401 Chassis Wiring Harness to Engine Wiring Harness Chassis (L5P)* • *X401 Chassis Wiring Harness to Engine Wiring Harness (L8T)*
X402A	Body Wiring Harness to Chassis Wiring Harness	UV2	In the right front wheel house, behind wheel liner, forward of suspension, attached to the right outboard frame rail	*Engine Compartment - Body Wiring Harness - Front*	*X402A Body Wiring Harness to Chassis Wiring Harness*
X402B	Body Wiring Harness to Chassis Wiring Harness	UV2	In the right front wheel house, behind wheel liner, forward of suspension, attached to the right outboard frame rail	*Engine Compartment - Body Wiring Harness - Front*	*X402B Body Wiring Harness to Chassis Wiring Harness*
X402C	Body Wiring Harness to Chassis Wiring Harness	UV2	In the right front wheel house, behind wheel liner, forward of suspension, attached to the right outboard frame rail	• *Engine Compartment - Body Wiring Harness - Front* • *Engine Compartment - Body Wiring Harness - Left*	*X402C Body Wiring Harness to Chassis Wiring Harness*
X404	Emission Reduction Fluid Tank Reservoir Wire Harness to Chassis Wiring Harness	L5P	Under the vehicle, right rear, forward of rear axle, inboard of right frame rail	*Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab*	*X404 Emission Reduction Fluid Tank Reservoir Wire Harness to Chassis Wiring Harness*

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X410	Body Wiring Harness to Chassis Wiring Harness	—	In the engine compartment, top left side, rear of grounds on left side of body	• Engine Compartment - Body Wiring Harness - Front • Engine Compartment - Body Wiring Harness - Left	X410 Body Wiring Harness to Chassis Wiring Harness
X412	Assist Step Motor Jumper Wiring Harness - Left to Chassis Wiring Harness	BRS	Under the vehicle, left rear, forward of left front leaf spring hanger, outboard of left frame rail	Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab	X412 Assist Step Motor Jumper Wiring Harness - Left to Chassis Wiring Harness (BRS)
X413	Assist Step Motor Jumper Wiring Harness - Right to Chassis Wiring Harness	BRS	Under the vehicle, right rear, forward of right front leaf spring hanger, outboard of right frame rail	—	X413 Assist Step Motor Jumper Wiring Harness - Right to Chassis Wiring Harness (BRS)
X414	Chassis Rear Wiring Harness to Chassis Wiring Harness	KC9 / KCA	At the rear of the vehicle, right side, forward of rear bumper, inboard of right frame rail, rearward of frame cross member	Vehicle Underbody - Chassis Wiring Harness - Rear - Double Cab/Crew Cab	X414 Chassis Rear Wiring Harness to Chassis Wiring Harness
X415	Engine Wiring Harness to Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness	NP0 / NQH	Underneath the bed, attached to harness bracket mounted to the rear of frame cross rail, forward of rear axle	• Engine Compartment - Engine Wiring Harness - Left Front (L5P) • Engine Compartment - Engine Wiring Harness - Right Front (L8T)	• X415 Engine Wiring Harness Chassis to Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness (L5P) • X415 Engine Wiring Harness Chassis to Transfer Case Selector Shift Control Switch Wiring Harness Extension Harness (L8T)
X420A	Chassis Rear Wiring Harness Extension Harness to Chassis Wiring Harness	—	Under the rear of the vehicle, above rear differential attached to bracket that is mounted to frame cross member	Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab	X420A Chassis Rear Wiring Harness Extension Harness to Chassis Wiring Harness
X420B	Chassis Rear Wiring Harness Extension Harness to Chassis Wiring Harness	—	Under the rear of the vehicle, above rear differential attached to bracket that is mounted to frame cross member	Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab	• X420B Chassis Rear Wiring Harness Extension Harness to Chassis Wiring Harness (JBP) • X420B Chassis Wiring Harness to Chassis Rear Wiring Harness Extension Harness (JBP&G94)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X424	Body Wiring Harness to Chassis Wiring Harness	FHS	Under the vehicle, in the right front wheel well, on top of the right front strut tower	- Engine Compartment - Body Wiring Harness - Front - Engine Compartment - Body Wiring Harness - Left	- X424 Body Wiring Harness to Chassis Wiring Harness - Chassis Cab - X424 Body Wiring Harness to Chassis Wiring Harness - without Chassis Cab
X426	Chassis Wiring Harness to Chassis Wiring Harness	—	In the engine compartment, mounted next to the battery	Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab	X426 Chassis Wiring Harness to Chassis Wiring Harness
X480	Chassis Wiring Harness to Trailer Rear Wiring Harness	—	At rear of vehicle, behind rear bumper	Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab	X480 Chassis Wiring Harness to Trailer Rear Wiring Harness
X481	Trailer Rear Wiring Harness to Trailer Rear Wiring Harness	—	At rear of vehicle, behind rear bumper	—	X481 Trailer Rear Wiring Harness to Trailer Rear Wiring Harness
X500	Front Side Door Door Wiring Harness - Left to Body Wiring Harness	—	In the passenger compartment, behind the left side of the instrument panel	Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab	X500 Front Side Door Door Wiring Harness - Left to Body Wiring Harness
X505	Front Side Door Door Wiring Harness - Left to Front Side Door Door Lock Door Wiring Harness - Left	—	In the driver door, behind the driver door panel	—	X505 Front Side Door Door Wiring Harness - Left to Front Side Door Door Lock Door Wiring Harness - Left
X600	Front Side Door Door Wiring Harness - Right to Body Wiring Harness	—	In the passenger compartment, behind the right side of the instrument panel	- Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab - Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	X600 Front Side Door Door Wiring Harness - Right to Body Wiring Harness
X605	Front Side Door Door Wiring Harness - Right to Front Side Door Door Lock Door Wiring Harness - Right	—	In the passenger door, behind the passenger door panel	—	X605 Front Side Door Door Wiring Harness - Right to Front Side Door Door Lock Door Wiring Harness - Right
X630	Auxiliary Fuse Block Wiring Harness to Auxiliary Fuse Block Wiring Harness	9L7	In the passenger compartment, left front, within instrument panel, left side, taped to the instrument panel wiring harness	—	X630 Auxiliary Fuse Block Wiring Harness to Auxiliary Fuse Block Wiring Harness

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X700	Rear Side Door Door Wiring Harness - Left to Body Wiring Harness	Double Cab / Crew Cab	In the passenger compartment, behind the left B-pillar, near the middle	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab	X700 Rear Side Door Door Wiring Harness - Left to Body Wiring Harness
X701	Rear Side Door Door Wiring Harness - Left to Rear Side Door Wiring Harness - Tweeter Jumper	UQS	Attached to the left rear door trim panel, towards the front, at the top	—	X701 Rear Side Door Door Wiring Harness - Left to Rear Side Door Wiring Harness
X800	Rear Side Door Door Wiring Harness - Right to Body Wiring Harness	Double Cab / Crew Cab	In the passenger compartment, behind the right B-pillar, near the middle	Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	X800 Rear Side Door Door Wiring Harness - Right to Body Wiring Harness
X801	Rear Side Door Door Wiring Harness - Right to Rear Side Door Wiring Harness - Tweeter Jumper	UQS	Attached to the right rear door trim panel, towards the front, at the top	—	X801 Rear Side Door Door Wiring Harness - Right to Rear Side Door Wiring Harness
X850	Roof Wiring Harness to Instrument Panel Wiring Harness	—	In the passenger compartment, at the top of the left A pillar	Instrument Panel Wiring Harness	X850 Roof Wiring Harness to Instrument Panel Wiring Harness
X910A	Tail Lamp Wiring Harness - Left to Chassis Wiring Harness	—	At the rear of the vehicle, left corner, underneath, on left frame rail	Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab	• X910A Tail Lamp Wiring Harness - Left to Chassis Wiring Harness - Chassis Cab • X910A Tail Lamp Wiring Harness - Left to Chassis Wiring Harness - without Chassis Cab
X910C	Tail Lamp Wiring Harness - Left to Left Side Marker Lamp Harness	—	At the rear of the vehicle, left corner, underneath, on left frame rail	—	X910C Tail Lamp Wiring Harness - Left to Left Side Marker Lamp Harness (DZW)
X918	Endgate Wiring Harness to Chassis Wiring Harness	—	At the rear of the vehicle, left side, beneath truck bed, forward of endgate	• Rear of Vehicle - Endgate Wiring Harness • Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab	X918 Endgate Wiring Harness to Chassis Wiring Harness
X919	Endgate Wiring Harness to Chassis Wiring Harness	—	At the rear of the vehicle, left side, beneath truck bed, forward of endgate	• Rear of Vehicle - Endgate Wiring Harness • Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab	X919 Endgate Wiring Harness to Chassis Wiring Harness

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X920A	Tail Lamp Wiring Harness - Right to Chassis Wiring Harness	—	At the rear of the vehicle, right corner, underneath, on right frame rail	Vehicle Underbody - Chassis Wiring Harness - Rear - Double Cab/Crew Cab	• X920A Tail Lamp Wiring Harness - Right to Chassis Wiring Harness - without Chassis Cab • X920A Tail Lamp Wiring Harness - Right to Chassis Wiring Harness - Chassis Cab
X920C	Tail Lamp Wiring Harness - Right to Right Side Marker Lamp Harness	—	At the rear of the vehicle, right corner, underneath, on right frame rail	—	X920C Tail Lamp Wiring Harness - Right to Right Side Marker Lamp Harness (DZW)
X950	Rear Object Alarm Sensor Wiring Harness to Chassis Wiring Harness	—	At the rear of the vehicle, right side, forward of rear bumper, inboard of right frame rail, rearward of frame cross member	• Rear of Vehicle - Rear Object Alarm Sensor Harness • Vehicle Underbody - Chassis Wiring Harness - Rear - Double Cab/Crew Cab	• X950 Rear Object Alarm Sensor Wiring Harness to Chassis Wiring Harness - Chassis Cab • X950 Rear Object Alarm Sensor Wiring Harness to Chassis Wiring Harness - without Chassis Cab
X950D	Engine Wiring Harness Chassis to Engine Wiring Harness	—	In the engine compartment, left front, top of the engine	• Engine Compartment - Engine Wiring Harness - Left Front (L5P) • Engine Compartment - Engine Wiring Harness - Right Front (L5P)	X950D Engine Wiring Harness Chassis to Engine Wiring Harness (L5P)
X960A	Engine Wiring Harness to Engine Wiring Harness Extension	L5P	In the engine compartment, center, top of the engine	Engine Compartment - Engine Wiring Harness - Right Front (L5P)	X960A Engine Wiring Harness to Engine Wiring Harness Extension (L5P)
X960B	Engine Wiring Harness to Engine Wiring Harness Extension	L5P	In the engine compartment, center, top of the engine	Engine Compartment - Engine Wiring Harness - Right Front (L5P)	X960B Engine Wiring Harness to Engine Wiring Harness Extension (L5P)
X962	Engine Wiring Harness to Engine Coolant Temperature Sensor Harness	L8T	In the engine compartment, left front, near the top of the left rocker arm cover	Engine Compartment - Engine Wiring Harness - Right Front (L8T)	X962 Engine Wiring Harness to Engine Coolant Temperature Sensor Harness (L8T)
X977	Engine Wiring Harness Chassis to Accessory Wiring Harness	VYU	In the engine compartment, left front, near top of G13 Generator	Engine Compartment - Engine Wiring Harness - Right Front (L8T)	• X977 Engine Wiring Harness to Accessory Wiring Harness (L5P&VYU) • X977 Engine Wiring Harness to Accessory Wiring Harness (L8T&VYU)

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
X985A	Rearview Driver Information Camera Rear Closure Coaxial Cable to Inside Rearview Mirror Wiring Harness	DRZ	In the passenger compartment, at the rear of the headliner	—	*X985A Rearview Driver Information Camera Rear Closure Coaxial Cable to Inside Rearview Mirror Wiring Harness (DRZ)*
G100	Auxiliary Battery Negative Cable	—	In the engine compartment, left front, attached to the inboard side of the left body structure	—	—
G102A	Engine Wiring Harness	—	In the engine compartment, left front, attached to the inboard side of the left body structure, forward of grounds G103A and G103B	—	—
G102B	Body Wiring Harness	—	In the engine compartment, left front, attached to the inboard side of the left body structure, forward of grounds G103A and G103B	—	—
G103A	Body Wiring Harness	—	In the engine compartment, left front, attached to the inboard side of the left body structure, rearward of grounds G102A and G102B	*G103A and G103B*	—
G103B	Body Wiring Harness	—	In the engine compartment, left front, attached to the inboard side of the left body structure, rearward of grounds G102A and G102B	*G103A and G103B*	—
G104	Body Wiring Harness	—	In the engine compartment, right side, attached to the inboard side of the right body structure, rearward of X50A Engine Wiring Harness Junction Block	*G104*	—
G105	Battery Negative Cable	—	In the engine compartment, right rear corner	—	—
G114	Engine Wiring Harness	—	In the engine compartment, mounted to engine, right front	*G114 (L5P)*	—
G131	Ground Strap	—	Under the vehicle, right front wheel well, behind inner fender, rearward of upper control arm	—	—
G132	Ground Strap	—	Under the vehicle, right front wheel well, behind inner fender, rearward of lower control arm	—	—
G133	Ground Strap	—	Under the vehicle, right front wheel well, behind inner fender, rearward of upper control arm	—	—
G134	Ground Strap	—	Under the vehicle, right front wheel well, behind inner fender, rearward of lower control arm	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
G175L	Engine Wiring Harness	L8T	In the engine compartment, mounted to the rear of left cylinder head	G175L and G176R	—
G176R	Engine Wiring Harness	L8T	In the engine compartment, mounted to the rear of right cylinder head	G175L and G176R	—
G177B	Engine Wiring Harness	—	In the engine compartment, right rear, mounted to engine block	• G177B (L5P) • G177B (L8T)	—
G200	Instrument Panel Wiring Harness	—	In the passenger compartment, left front, below A-pillar, behind driver side kick panel	—	—
G201	Instrument Panel Wiring Harness	—	In the passenger compartment, left front, behind driver front kick panel, beneath driver side A-pillar	—	—
G202	Air Heater Ground Wiring Harness	C32	In the passenger compartment, right front, behind passenger front kick panel	—	—
G203	Air Heater Ground Wiring Harness	C32	In the passenger compartment, left front, behind driver front kick panel, beneath driver side A-pillar	—	—
G300A	Body Wiring Harness	—	In the passenger compartment, right side, at the base of the B-pillar	G300A and G300B - Double Cab/Crew Cab	—
G300B	Body Wiring Harness	—	In the passenger compartment, right side, at the base of the B-pillar	G300A and G300B - Double Cab/Crew Cab	—
G301A	Instrument Panel Wiring Harness	—	In the passenger compartment, left side, at the base of the left B-Pillar	G301A, G301B and G303 - Double Cab/Crew Cab	—
G301B	Body Wiring Harness	—	In the passenger compartment, left side, at the base of the left B-Pillar	G301A, G301B and G303 - Double Cab/Crew Cab	—
G303	Body Wiring Harness	—	In the passenger compartment, left side, attached to the body beneath the driver seat	G301A, G301B and G303 - Double Cab/Crew Cab	—
G402	Chassis Wiring Harness	—	Under the vehicle, right side, attached to the right rear of the body mount	G402	—
G404	Chassis Wiring Harness	—	Under the rear of the vehicle, forward of the hitch and endgate, attached to the rear of the frame cross member, furthest right of the 3 grounds	G404, G406A, G406B and G407	—
G406A	Chassis Wiring Harness	—	Under the rear of the vehicle, forward of the hitch and endgate, attached to the rear of the frame cross member, middle of the 3 grounds	G404, G406A, G406B and G407	—
G406B	Chassis Wiring Harness	—	Under the rear of the vehicle, forward of the hitch and endgate, attached to the rear of the frame cross member, middle of the 3 grounds	G404, G406A, G406B and G407	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
G407	Chassis Wiring Harness	—	Under the rear of the vehicle, forward of the hitch and endgate, attached to the rear of the frame cross member, furthest left of the 3 grounds	G404, G406A, G406B and G407	—
J100	Engine Wiring Harness	L8T	In the engine compartment, left lower side, on harness before branch to X50A Engine Wiring Harness Junction Block X3	• Engine Compartment - Engine Wiring Harness - Left Front (L5P) • Engine Compartment - Engine Wiring Harness - Right Front (L8T)	—
J101	Engine Wiring Harness	L8T	In the engine compartment, left lower side, on harness before branch to X50A Engine Wiring Harness Junction Block X3	• Engine Compartment - Engine Wiring Harness - Left Front (L5P) • Engine Compartment - Engine Wiring Harness - Right Front (L8T)	—
J102	Engine Wiring Harness	L8T	In the engine compartment, left lower side, in channel near breakout to B68A Knock Sensor 1	Engine Compartment - Engine Wiring Harness - Left Front (L5P)	—
J103	Engine Wiring Harness	L8T	In the engine compartment, near breakout to Q12 Evaporative Emission Canister Purge Solenoid Valve	Engine Compartment - Engine Wiring Harness - Right Front (L8T)	—
J104	Engine Wiring Harness	L8T	In the engine compartment, near breakout to Q12 Evaporative Emission Canister Purge Solenoid Valve	Engine Compartment - Engine Wiring Harness - Right Front (L8T)	—
J105	Engine Wiring Harness	L8T	In the engine compartment, near breakout to Q38 Throttle Body	• Engine Compartment - Engine Wiring Harness - Left Front (L5P) • Engine Compartment - Engine Wiring Harness - Right Front (L8T)	—
J106	Engine Wiring Harness	L8T	In the engine compartment, near breakout to connector X160	Engine Compartment - Engine Wiring Harness - Left Rear (L8T)	—
J107	Engine Wiring Harness	L8T	In the engine compartment, near breakout to connector X160	Engine Compartment - Engine Wiring Harness - Left Rear (L8T)	—
J108	Engine Wiring Harness	L8T	In the engine compartment, near breakout to ground G175L	• Engine Compartment - Engine Wiring Harness - Left Front (L5P) • Engine Compartment - Engine Wiring Harness - Right Front (L8T)	—
J109	Engine Wiring Harness	L8T	In the engine compartment, near breakout to ground G175L	Engine Compartment - Engine Wiring Harness - Right Front (L8T)	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J110	Engine Wiring Harness	—	• (L8T) In the engine compartment, left lower side, in channel near breakout to B68A Knock Sensor 1 • (L5P) In the engine compartment, between breakout to connector X112 and breakout to B195A Nitrogen Oxides Sensor 1	Engine Compartment - Engine Wiring Harness - Left Front (L5P)	—
J111	Engine Wiring Harness	—	• (L8T) In the engine compartment, top rear of engine, near breakout to X962 • (L5P) In the engine compartment, near breakout to B193A Charge Air Cooler Air Temperature Sensor - Inlet	• Engine Compartment - Engine Wiring Harness - Right Front (L8T) • Engine Compartment - Engine Wiring Harness - Right Front (L5P)	—
J112	Engine Wiring Harness	—	• (L8T) In the engine compartment, left side, before breakout to underhood fuse block • (L5P) In the engine compartment, left side, after branch to breakout to X145	• Engine Compartment - Engine Wiring Harness - Left Front (L5P) • Engine Compartment - Engine Wiring Harness - Right Front (L8T)	—
J113	Engine Wiring Harness	L5P	In the engine compartment, front, in harness near connector X950D	Engine Compartment - Engine Wiring Harness - Right Front (L5P)	—
J114	Engine Wiring Harness	L5P	In the engine compartment, near breakout to B193A Charge Air Cooler Air Temperature Sensor - Inlet	Engine Compartment - Engine Wiring Harness - Right Front (L5P)	—
J115	Engine Wiring Harness	L5P	In the engine compartment, near breakout to M103 Turbocharger Vane Position Actuator	Engine Compartment - Engine Wiring Harness - Right Front (L5P)	—
J116	Engine Wiring Harness	L5P	In the engine compartment, near breakout to B65 Manifold Absolute Pressure and Intake Air Temperature Sensor	Engine Compartment - Engine Wiring Harness - Right Front (L5P)	—
J117	PTO Wiring Harness	—	Under the vehicle, near Q32P Shift Solenoid Valve - Power Take-Off	Engine Compartment - Engine Wiring Harness - Left Front (L5P)	—
J118	Engine Wiring Harness	L5P	In the engine compartment, near breakout to X401	Engine Compartment - Engine Wiring Harness - Left Front (L5P)	—
J119	Engine Wiring Harness Chassis	PTO	In the engine compartment, near breakout to X401	Engine Compartment - Engine Wiring Harness - Left Front (L5P)	—
J120	Engine Wiring Harness	L5P	In the engine compartment, near breakout to X145	Engine Compartment - Engine Wiring Harness - Left Front (L5P)	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J121	Engine Wiring Harness	L5P	In the engine compartment, near breakout to X145	*Engine Compartment - Engine Wiring Harness - Left Front (L5P)*	—
J122	Engine Wiring Harness	L5P	In the engine compartment, near breakout to X145	*Engine Compartment - Engine Wiring Harness - Left Front (L5P)*	—
J123	Engine Wiring Harness	L5P	In the engine compartment, near breakout to X50A Engine Wiring Harness Junction Block X3	*Engine Compartment - Engine Wiring Harness - Left Front (L5P)*	—
J124	Engine Wiring Harness	L5P	In the engine compartment, left side of engine near bell housing	*Engine Compartment - Engine Wiring Harness - Left Front (L5P)*	—
J126	Front Object Alarm Sensor Wiring Harness	—	In the engine compartment, left rear, near breakout to B306C Parking Assist Alarm Sensor - Front Right Middle	*Front of Vehicle - Front Object Alarm Sensor Wiring Harness*	—
J127	Front Object Alarm Sensor Wiring Harness	—	At the front of the vehicle, attached to the inside of the front bumper, between breakout to B306B Parking Assist Alarm Sensor - Front Left Middle and breakout to B306C Parking Assist Alarm Sensor - Front Right Middle	*Front of Vehicle - Front Object Alarm Sensor Wiring Harness*	—
J128	Automatic Transmission Wiring Harness	—	Under the vehicle, within the automatic transmission assembly	—	—
J129	Front Object Alarm Sensor Wiring Harness	—	At the front of the vehicle, attached to the inside of the front bumper, between breakout to B306B Parking Assist Alarm Sensor - Front Left Middle and breakout to B306C Parking Assist Alarm Sensor - Front Right Middle	*Front of Vehicle - Front Object Alarm Sensor Wiring Harness*	—
J130	Snow Plow Wiring Harness	VYU	In the engine compartment, near, breakout to G13A Auxiliary Generator	—	—
J131	Snow Plow Wiring Harness	VYU	In the engine compartment, right front, between X55SP Fuse Holder - Snow Plow and KR181 Snow Plow Relay	—	—
J132	Front Object Alarm Sensor Wiring Harness	—	At the front of the vehicle, attached to the inside of the front bumper, between breakout to B306B Parking Assist Alarm Sensor - Front Left Middle and breakout to B306C Parking Assist Alarm Sensor - Front Right Middle	*Front of Vehicle - Front Object Alarm Sensor Wiring Harness*	—
J175	Automatic Transmission Wiring Harness	—	Under the vehicle, within the automatic transmission assembly	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J176	Automatic Transmission Wiring Harness	—	Under the vehicle, within the automatic transmission assembly	—	—
J178	Automatic Transmission Wiring Harness	—	Under the vehicle, within the automatic transmission assembly	—	—
J179	Automatic Transmission Wiring Harness	—	Under the vehicle, within the automatic transmission assembly	—	—
J184	Postive Auxiliary Battery Harness	K4B	In the engine compartmetn, right under auxiliary battery	—	—
J200	Instrument Panel Wiring Harness	—	In the passenger compartment, in breakout to K9 Body Control Module	*Instrument Panel Wiring Harness*	—
J201	Instrument Panel Wiring Harness	—	In the passenger compartment, in breakout to K9 Body Control Module	*Instrument Panel Wiring Harness*	—
J202	Instrument Panel Wiring Harness	—	In the passenger compartment, in breakout to K9 Body Control Module	*Instrument Panel Wiring Harness*	—
J203	Instrument Panel Wiring Harness	URC	In the passenger compartment, in breakout to X84 Data Link Connector	—	—
J204	Instrument Panel Wiring Harness	—	In the passenger compartment, near breakout to X84 Data Link Connector	*Instrument Panel Wiring Harness*	—
J205	Instrument Panel Wiring Harness	—	In the passenger compartment, near breakout to P19J Radio Front Speaker - Instrument Panel Left	• *Instrument Panel Wiring Harness* • *Instrument Panel Wiring Harness*	—
J206	Instrument Panel Wiring Harness	—	In the passenger compartment, between breakout to P43 Forward Collision Alert Display and breakout to K60 Column Lock Module	*Instrument Panel Wiring Harness*	—
J207	Instrument Panel Wiring Harness	—	In the passenger compartment, between breakout to P43 Forward Collision Alert Display and breakout to K60 Column Lock Module	• *Instrument Panel Wiring Harness* • *Instrument Panel Wiring Harness*	—
J208	Instrument Panel Wiring Harness	—	In the passenger compartment, in breakout to K60 Column Lock Module	*Instrument Panel Wiring Harness*	—
J209	Instrument Panel Wiring Harness	—	In the passenger compartment, between breakout to B10D Sun Load and Ambient Light and Security Indicator Sensor and breakout to K60 Column Lock Module	• *Instrument Panel Wiring Harness* • *Instrument Panel Wiring Harness* • *Instrument Panel Wiring Harness*	—
J210	Instrument Panel Wiring Harness	—	In the passenger compartment, between breakout to B10D Sun Load and Ambient Light and Security Indicator Sensor and breakout to K60 Column Lock Module	• *Instrument Panel Wiring Harness* • *Instrument Panel Wiring Harness*	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J211	Instrument Panel Wiring Harness	—	In the passenger compartment, between breakout to B10D Sun Load and Ambient Light and Security Indicator Sensor and breakout to K60 Column Lock Module	*Instrument Panel Wiring Harness*	—
J212	Instrument Panel Wiring Harness	—	In the passenger compartment, front center, within instrument panel, approximately 12 cm from breakout to T4TA Auxiliary Wireless Communication Interface Antenna	*Instrument Panel Wiring Harness*	—
J213	Instrument Panel Wiring Harness	—	In the passenger compartment, front center, within instrument panel, approximately 12 cm from breakout to P19W Radio Front Speaker - Instrument Panel Right	*Instrument Panel Wiring Harness*	—
J214	Instrument Panel Wiring Harness	—	In the passenger compartment, front center, within instrument panel, approximately 11 cm from X51R Instrument Panel Wiring Harness Junction Block - Right	—	—
J215	Instrument Panel Wiring Harness	—	In the passenger compartment, front center, within instrument panel, approximately 5 cm from breakout to M8 Blower Motor	*Instrument Panel Wiring Harness*	—
J216	Heater Wiring Harness	—	In the passenger compartment, front center, within instrument panel, approximately 18 cm from connector X250	—	—
J217	Heater Wiring Harness	—	In the passenger compartment, front center, within instrument panel, approximately 42 cm from connector X250	—	—
J218	Heater Wiring Harness	—	In the passenger compartment, front center, within instrument panel, approximately 30 cm from connector X250	—	—
J219	Steering Wheel Horn Switch Wiring Harness	—	In the passenger compartment, left front, within steering wheel	—	—
J222	Steering Wheel Horn Switch Wiring Harness	—	In the passenger compartment, left front, within steering wheel	—	—
J300	Body Wiring Harness	—	In the passenger compartment, approximately 10 cm from breakout to E13LA Front Headlamp - Left	• *Engine Compartment - Body Wiring Harness - Front* • *Engine Compartment - Body Wiring Harness - Left*	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J301	Body Wiring Harness	—	In the passenger compartment, in breakout to X50A Engine Wiring Harness Junction Block X1	• Engine Compartment - Body Wiring Harness - Front • Engine Compartment - Body Wiring Harness - Left	—
J302	Body Wiring Harness	—	In the passenger compartment, approximately 15 cm from breakout to B22 Brake Pedal Position Sensor	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J303	Body Wiring Harness	—	In the passenger compartment, approximately 14 cm from breakout to B22 Brake Pedal Position Sensor	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J304	Body Wiring Harness	—	In the passenger compartment, approximately 23 cm from breakout to B107 Accelerator Pedal Position Sensor	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J305	Body Wiring Harness	—	In the passenger compartment, approximately 20 cm from breakout to B107 Accelerator Pedal Position Sensor	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—
J306	Body Wiring Harness	—	In the passenger compartment, approximately 16 cm from breakout to B107 Accelerator Pedal Position Sensor	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—
J307	Body Wiring Harness	—	In the passenger compartment, approximately 12 cm from breakout to B107 Accelerator Pedal Position Sensor	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—
J308	Body Wiring Harness	—	In the passenger compartment, approximately 18 cm from breakout to B22 Brake Pedal Position Sensor	• *Engine Compartment - Body Wiring Harness - Left* • *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab*	—
J309	Body Wiring Harness	—	In the passenger compartment, in breakout to X53AF Body Wiring Harness Junction Block	*Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab*	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J310	Body Wiring Harness	—	In the passenger compartment, approximately 40 cm from breakout to Connector X210	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab*	—
J311	Body Wiring Harness	—	In the passenger compartment, approximately 42 cm from breakout to Connector X210	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab*	—
J312	Body Wiring Harness	—	In the passenger compartment, approximately 44 cm from breakout to Connector X210	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab*	—
J313	Body Wiring Harness	—	In the passenger compartment, approximately 12 cm from breakout to K36 Restraints Control Module X2	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J314	Body Wiring Harness	—	In the passenger compartment, approximately 32 cm from breakout to K36 Restraints Control Module X1	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J315	Body Wiring Harness	—	In the passenger compartment, approximately 23 cm from breakout to G303	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J318	Body Wiring Harness	—	In the passenger compartment, approximately 10 cm from breakout to B58R Airbag Front End Discriminating Sensor - Right	Engine Compartment - Body Wiring Harness - Front	—
J319	Body Wiring Harness	—	In the passenger compartment, approximately 26 cm from breakout to right bulkhead passthrough grommet	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J320	Body Wiring Harness	—	In the passenger compartment, approximately 44 cm from breakout to right bulkhead passthrough grommet	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—
J321	Body Wiring Harness	—	In the passenger compartment, approximately 54 cm from breakout to right bulkhead passthrough grommet	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—
J322	Body Wiring Harness	—	In the passenger compartment, approximately 30 cm from breakout to B107 Accelerator Pedal Position Sensor	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—
J323	Body Wiring Harness	—	In the passenger compartment, right side, approximately 30 cm from breakout to connector X336	• *Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J325	Body Wiring Harness	—	In the passenger compartment, center, approximately 3 cm from breakout to connector X227	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front - Regular Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J326	Body Wiring Harness	—	In the passenger compartment, in breakout to M75 Windshield Wiper Motor	• Engine Compartment - Body Wiring Harness - Front • Engine Compartment - Body Wiring Harness - Left • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J327	Body Wiring Harness	—	In the passenger compartment, right side, approximately 90 cm from breakout to connector X210	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab	—
J328	Body Wiring Harness	—	In the passenger compartment, in breakout to X53AF Body Wiring Harness Junction Block	Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab	—
J329	Body Wiring Harness	—	In the passenger compartment, approximately 27 cm from breakout to left bulkhead passthrough grommet	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J330	Body Wiring Harness	—	In the passenger compartment, left side, approximately 27 cm from breakout to X331	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J331	Body Wiring Harness	—	In the passenger compartment, left side, approximately 10 cm from breakout to X331	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J332	Body Wiring Harness	—	In the passenger compartment, right side, under right front door sill plate	Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J333	Body Wiring Harness	—	In the passenger compartment, center, approximately 14 cm from breakout to connector X227	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—
J334	Body Wiring Harness	—	In the passenger compartment, center, approximately 13 cm from breakout to connector X227	• Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J336	Body Wiring Harness	—	In the passenger compartment, left side, approximately 5 cm from crossover bundle	• Center Console - Front Floor Console Wiring Harness • Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab • Passenger Compartment - Body Wiring Harness - Middle - Double Cab/Crew Cab	—
J337	Front Floor Console Wiring Harness	—	In the passenger compartment, center, approximately 5 cm from breakout to T22 Wireless Accessory Charging Module	Center Console - Front Floor Console Wiring Harness	—
J338	Front Floor Console Wiring Harness	—	In the passenger compartment, center, approximately 9 cm from breakout to T22 Wireless Accessory Charging Module	Center Console - Front Floor Console Wiring Harness	—
J339	Front Floor Console Wiring Harness	—	In the passenger compartment, center, approximately 36 cm from breakout to T10KA Low Frequency Console Number 2 Antenna	Center Console - Front Floor Console Wiring Harness	—
J340	Chassis Wiring Harness	—	• (Pickup) Under the vehicle, left, approximately 21 cm from breakout to G402 • (Chassis Cab) Under the vehicle, left side, approximately 12 cm from breakout to connector X401	Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab	—
J341	Chassis Wiring Harness	—	• (Pickup) Under the vehicle, center crossover bundle, approximately 85 cm from left side breakout • (Chassis Cab) Under the vehicle, left side, approximately 24 cm from breakout to G402	Vehicle Underbody - Chassis Wiring Harness - Rear - Double Cab/Crew Cab	—
J342	Chassis Wiring Harness	—	• (Pickup) Under the vehicle, center crossover bundle, approximately 55 cm from left side breakout • (Chassis Cab) Under the vehicle, left side, approximately 80 cm from breakout to G402	Vehicle Underbody - Chassis Wiring Harness - Rear - Double Cab/Crew Cab	—
J343	Chassis Wiring Harness	L8T	(Chassis Cab) Under the vehicle, left, approximately 17 cm from breakout to G402	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J344	Chassis Wiring Harness	L5P	• (Pickup) Under the vehicle, right side, approximately 10 cm from breakout to B345P Exhaust Pressure Differential Sensor - Particulate Filter • (Chassis Cab) Under the vehicle, left side, approximately 12 cm from breakout to G407	*Vehicle Underbody - Chassis Wiring Harness - Rear - Double Cab/Crew Cab*	—
J345	Chassis Wiring Harness	—	• (Pickup) Under the vehicle, left, forward approximately 50 cm from crossover bundle • (Chassis Cab) Under the vehicle, left side, approximately 43 cm from breakout to connector X404	• *Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab* • *Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J347	Chassis Wiring Harness	L5P	• (Pickup) Under the vehicle, left side, approximately 21 cm rearward from crossover bundle • (Chassis Cab) Under the vehicle, left side, approximately 51 cm from breakout to K111 Fuel Pump Power Control Module	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J348	Chassis Wiring Harness	—	• (Pickup) Under the vehicle, left side, approximately 7 cm from breakout to G407 • (Chassis Cab) Under the vehicle, left side, approximately 6 cm from breakout to connector X910A	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J349	Chassis Wiring Harness	—	• (Pickup) Under the vehicle, left side, near breakout to K38 Chassis Control Module • (Chassis Cab) Under the vehicle, left side, near breakout to connector X910A	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J350	Chassis Wiring Harness	L5P	• (Pickup) Under the vehicle, left side, approximately 15 cm from breakout to B47 Fuel Pressure Sensor • (Chassis Cab) Under the vehicle, left side, in breakout to B136 Exhaust Particulate Matter Sensor	*Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab*	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J351	Chassis Wiring Harness	—	- (Pickup) Under the vehicle, left side, between breakout to G402 and breakout to connector X412 - (Chassis Cab) Under the vehicle, left side, in breakout to B136 Exhaust Particulate Matter Sensor	*Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab*	—
J352	Chassis Wiring Harness	—	(Pickup) Under the vehicle, left side, approximately 5 cm from breakout to connector X424	*Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab*	—
J353	Chassis Wiring Harness	—	- (Pickup) Under the vehicle, left side, approximately 18 cm from breakout to connector X424 - (Chassis Cab) Under the vehicle, left side, approximately 25 cm from breakout to B47 Fuel Pressure Sensor	*Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab*	—
J354	Chassis Wiring Harness	FHS	(Pickup) Under the vehicle, left, approximately 24 cm from breakout to G402	*Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab*	—
J355	Chassis Wiring Harness	—	(Pickup) Under the vehicle, left side, rearward of breakout to connector X404	*Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab*	—
J356	Chassis Wiring Harness	—	(Pickup) Under the vehicle, left side, rearward of breakout to connector X404	*Vehicle Underbody - Chassis Wiring Harness - Left - Double Cab/Crew Cab*	—
J357	Chassis Wiring Harness	—	(Pickup) Under the vehicle, left, forward approximately 28 cm from breakout to K111 Fuel Pump Power Control Module	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J358	Chassis Wiring Harness	BRS	(Pickup) Under the vehicle, left, forward approximately 20 cm from breakout to K111 Fuel Pump Power Control Module	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J359	Chassis Wiring Harness	—	(Pickup) Under the vehicle, left, forward approximately 15 cm from breakout to K111 Fuel Pump Power Control Module	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J360	Chassis Wiring Harness	—	(Pickup) Under the vehicle, left, forward approximately 10 cm from breakout to K111 Fuel Pump Power Control Module	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J361	Chassis Wiring Harness	—	(Pickup) Under the vehicle, left, forward approximately 5 cm from breakout to K111 Fuel Pump Power Control Module	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J362	Chassis Wiring Harness	—	(Pickup) Under the vehicle, left, forward approximately 20 cm from breakout to connector X910A	*Vehicle Underbody - Chassis Wiring Harness - Right - Double Cab/Crew Cab*	—
J363	Dome Lamp Wiring Harness	—	In the passenger compartment, right, top of right A pillar channel	*Roof - Dome Lamp Wiring Harness - Double Cab*	—
J364	Dome Lamp Wiring Harness	—	In the passenger compartment, right, top of right A pillar channel	*Roof - Dome Lamp Wiring Harness - Double Cab*	—
J365	Dome Lamp Wiring Harness	—	In the passenger compartment, right side, near breakout to E31R Sunshade Mirror Lamp - Right	*Roof - Dome Lamp Wiring Harness - Double Cab*	—
J366	Dome Lamp Wiring Harness	—	In the passenger compartment, right side, between breakout to E31R Sunshade Mirror Lamp - Right and breakout to B24RF Mobile Telephone Microphone - Right Front	*Roof - Dome Lamp Wiring Harness - Double Cab*	—
J367	Dome Lamp Wiring Harness	—	In the passenger compartment, right side, between breakout to B24RF Mobile Telephone Microphone - Right Front and breakout to A103 Roof Console	*Roof - Dome Lamp Wiring Harness - Double Cab*	—
J368	Dome Lamp Wiring Harness	—	In the passenger compartment, right side, between breakout to B24RF Mobile Telephone Microphone - Right Front and breakout to A103 Roof Console	*Roof - Dome Lamp Wiring Harness - Double Cab*	—
J369	Front Seat Wiring Harness - Center	AZ3	In the passenger compartment, center, between breakout to X81FSA Accessory Power Receptacle - Front Center Seat Rear Cover 110V AC and connector X227	—	—
J370	Front Seat Wiring Harness - Driver	—	In the passenger compartment, driver seat, approximately 7.5 cm from breakout to M55D Front Seat Vertical Adjuster Actuator - Driver	—	—
J371	Front Seat Wiring Harness - Driver	—	In the passenger compartment, driver seat, approximately 2 cm from breakout to M73D Front Seat Cushion Ventilation Blower - Driver	—	—
J372	Front Seat Wiring Harness - Driver	—	In the passenger compartment, driver seat, approximately 5 cm from breakout to M73D Front Seat Cushion Ventilation Blower - Driver	—	—
J373	Front Seat Wiring Harness - Driver	—	In the passenger compartment, driver seat, approximately 3 cm from breakout to M50D Front Seat Tilt Adjuster Actuator - Driver	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J374	Front Seat Wiring Harness - Driver	—	In the passenger compartment, driver seat, approximately 3 cm from breakout to E14B Front Seat Cushion Heater - Driver	—	—
J375	Front Seat Wiring Harness - Driver	—	In the passenger compartment, driver seat, approximately 5 cm from breakout to E14B Front Seat Cushion Heater - Driver	—	—
J376	Front Seat Wiring Harness - Driver	—	In the passenger compartment, driver seat, approximately 7 cm from breakout to P45R Front Seat Lame Departure Warning Actuator - Right	—	—
J377	Front Seat Wiring Harness - Passenger	—	In the passenger compartment, passenger seat, approximately 8 cm from breakout to M73P Front Seat Cushion Ventilation Blower - Passenger	—	—
J378	Front Seat Wiring Harness - Passenger	—	In the passenger compartment, passenger seat, approximately 11 cm from breakout to K29FV Front Seat Heater Vent Control Module	—	—
J379	Front Seat Wiring Harness - Passenger	—	In the passenger compartment, passenger seat harness	—	—
J380	Front Seat Wiring Harness - Passenger	—	In the passenger compartment, passenger seat harness	—	—
J383	Roof Wiring Harness	—	In the passenger compartment, roof, approximately 20 cm from connector X850	—	—
J384	Roof Wiring Harness	—	In the passenger compartment, roof, approximately 50 cm from E3E Front Clearance Lamp - Roof Right Outer	—	—
J385	Body Wiring Harness	—	In the passenger compartment, approximately 48 cm from breakout to right bulkhead passthrough grommet	• *Passenger Compartment - Body Wiring Harness - Left Front - Double Cab/Crew Cab* • *Passenger Compartment - Body Wiring Harness - Right Front -Double Cab/Crew Cab*	—
J387	Front Floor Console Wiring Harness	—	In the passenger compartment, center, approximately 14 cm from connector X227	—	—
J388	Rear Seat Heater Control Wiring Harness	—	In the passenger compartment, rear seat, approximately 7 cm from K234 Rear Seat Heater Vent Control Module	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J389	Front Seat Wiring Harness - Passenger	—	In the passenger compartment, passenger seat harness	—	—
J402	Trailer Rear Wiring Harness	UY2 / Z6A	In trailer harness, approximately 22 cm from X88B Tow Vehicle Electrical Receptacle	—	—
J403	Trailer Rear Wiring Harness	UY2 / Z6A	In trailer harness, approximately 15 cm from X88B Tow Vehicle Electrical Receptacle	—	—
J404	Trailer Rear Wiring Harness	UY2 / Z6A	In trailer harness, approximately 8 cm from X88B Tow Vehicle Electrical Receptacle	—	—
J405	Trailer Rear Wiring Harness	UY2 / Z6A	In trailer harness, approximately 30 cm from X88B Tow Vehicle Electrical Receptacle	—	—
J406	Trailer Rear Wiring Harness	UY2 / Z6A	In trailer harness, approximately 7 cm from X88B Tow Vehicle Electrical Receptacle	—	—
J407	Trailer Rear Wiring Harness	UY2 / Z6A	In trailer harness, approximately 23 cm from X88B Tow Vehicle Electrical Receptacle	—	—
J500	Front Side Door Door Wiring Harness - Driver	—	In the driver front door, approximately 8 cm from breakout to P19AG Radio Front Side Door Speaker - Left	—	—
J501	Front Side Door Door Wiring Harness - Driver	—	In the driver front door, approximately 12 cm from breakout to B63LF Airbag Side Impact Sensor - Left Front Door	—	—
J502	Front Side Door Door Wiring Harness - Driver	—	In the driver front door, approximately 15 cm from breakout to A24D Front Side Door Outside Handle - Left	—	—
J550	Front Side Door Door Lock Door Wiring Harness - Left	—	In the driver front door, in breakout to S79D Front Side Door Window Control Switch - Driver	—	—
J551	Outside Rearview Mirror - Driver	—	In the driver outside rearview mirror	—	—
J600	Front Side Door Door Wiring Harness - Passenger	—	In the passenger front door, between breakout to B63RF Airbag Side Impact Sensor - Right Front Door and breakout to A24P Front Side Door Outside Handle - Right	—	—
J601	Front Side Door Door Wiring Harness - Passenger	—	In the passenger front door, between breakout to B63RF Airbag Side Impact Sensor - Right Front Door and breakout to P19AH Radio Front Side Door Speaker - Right	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J602	Front Side Door Door Wiring Harness - Passenger	—	In the passenger front door, between breakout to B63RF Airbag Side Impact Sensor - Right Front Door and breakout to P19AH Radio Front Side Door Speaker - Right	—	—
J650	Front Side Door Door Lock Door Wiring Harness - Right	—	In the driver front door, in breakout to S79P Front Side Door Window Switch - Passenger	—	—
J651	Outside Rearview Mirror - Passenger	—	In the passenger outside rearview mirror	—	—
J700	Rear Side Door Door Wiring Harness - Left	—	In the left rear door, between breakout to M74LR Rear Side Door Window Regulator Motor - Left and breakout to B63LR Airbag Side Impact Rear Sensor - Left Door	—	—
J800	Rear Side Door Door Wiring Harness - Right	—	In the right rear door, between breakout to M74RR Rear Side Door Window Regulator Motor - Right and breakout to B63RR Airbag Side Impact Rear Sensor - Right Door	—	—
J900	Endgate Wiring Harness	—	• (QK1) At the rear of the vehicle, within endgate,approximately 15 cm from M14A Pickup Box Endgate Lock Actuator • (QK2) At the rear of the vehicle, within endgate, between breakout to A99L Pickup Box Endgate Latch - Left and breakout to A99R Pickup Box Endgate Latch - Right	Rear of Vehicle - Endgate Wiring Harness	—
J901	Endgate Wiring Harness	—	At the rear of the vehicle, within endgate, between breakout to A99L Pickup Box Endgate Latch - Left and breakout to A99R Pickup Box Endgate Latch - Right	—	—
J902	Endgate Wiring Harness	—	At the rear of the vehicle, within endgate, between breakout to A99L Pickup Box Endgate Latch - Left and breakout to A99R Pickup Box Endgate Latch - Right	—	—
J903	Endgate Wiring Harness	—	At the rear of the vehicle, within endgate, between breakout to A99L Pickup Box Endgate Latch - Left and breakout to A99R Pickup Box Endgate Latch - Right	—	—

Master Electrical Component List (cont'd)

Code	Name	Option	Location	Locator View	Connector End View
J904	Rear Object Alarm Sensor Wiring Harness	—	At the rear of the vehicle, inside of rear fascia, in breakout to E7L Rear License Plate Lamp - Left	*Rear of Vehicle - Rear Object Alarm Sensor Harness*	—
J905	Rear Object Alarm Sensor Wiring Harness	—	At the rear of the vehicle, inside of rear fascia, between breakout to E7R Rear License Plate Lamp - Right and breakout to E7L Rear License Plate Lamp - Left	*Rear of Vehicle - Rear Object Alarm Sensor Harness*	—
J906	Rear Object Alarm Sensor Wiring Harness	—	At the rear of the vehicle, inside of rear fascia, between breakout to E7L Rear License Plate Lamp - Left and breakout to inline connector X950	*Rear of Vehicle - Rear Object Alarm Sensor Harness*	—
J907	Rear Object Alarm Sensor Wiring Harness	—	At the rear of the vehicle, inside of rear fascia, between breakout to E7L Rear License Plate Lamp - Left and breakout to inline connector X951	*Rear of Vehicle - Rear Object Alarm Sensor Harness*	—
J908	Rear Object Alarm Sensor Wiring Harness	—	At the rear of the vehicle, inside of rear fascia, between breakout to E7L Rear License Plate Lamp - Left and breakout to inline connector X952	*Rear of Vehicle - Rear Object Alarm Sensor Harness*	—
J909	Rear Object Alarm Sensor Wiring Harness	—	At the rear of the vehicle, inside of rear fascia, between breakout to E7L Rear License Plate Lamp - Left and breakout to inline connector X953	*Rear of Vehicle - Rear Object Alarm Sensor Harness*	—
J910	Rear License Plate Lamp Wiring Harness Extension Harness - Left	DZW	At the rear of the vehicle, approximately 34 cm from breakout towards E3LF Rear Fender Clarence Lamp - Left Front	—	—
J911	Rear License Plate Lamp Wiring Harness Extension Harness - Right	DZW	At the rear of the vehicle, approximately 8 cm from breakout towards E3RF Rear Clearance Lamp - Fender Right Front	—	—
J912	Rear License Plate Lamp Wiring Harness Extension Harness - Left	DZW	At the rear of the vehicle, approximately 10 cm from breakout towards E3LF Rear Fender Clarence Lamp - Left Front	—	—
J913	Rear License Plate Lamp Wiring Harness Extension Harness - Right	DZW	At the rear of the vehicle, approximately 30 cm from breakout towards E3RF Rear Clearance Lamp - Fender Right Front	—	—
J914	Rear Lamp Wiring Harness	—	At the rear of the vehicle, in left rear tail lamp harness	—	—
J915	Rear Lamp Wiring Harness	—	At the rear of the vehicle, in right rear tail lamp harness	—	—

Description and Operation

Power Mode Description and Operation

Object-ID=5239284 Owner=Salkowski, Jakob LMD=09-Jan-2023 LMB=Blanzy, Ken

Serial Data Power Mode Master

The K9 Body Control Module (BCM) is the Power Mode Master and the K56 Serial Data Gateway Module is the Back-Up Power Mode Master.

The Power Mode Master uses various vehicle status conditions and inputs to determine the desired vehicle power mode state. The Power Mode (Off, Accessory, Run, Propulsion, Start) is communicated to other modules via Serial Data and other electrical signals in order to provide the proper feature operation for the appropriate power mode.

If the Power Mode Master cannot control or determine the correct Power Mode, the Backup Power Mode Master will take over and become the vehicle Power Mode Master and place the vehicle into the proper Power Mode by communicating with other modules via Serial Data to provide the proper electrical signals to provide the proper feature operation for the appropriate power mode.

S38 On/Off Vehicle Switch

There are 5 power modes to convey driver intent:

- OFF – A low power mode that allows maximum stand time until next start
- ACCY – Allows use of certain features that require operator authorization (Power windows for example). Propulsion is specifically disallowed.
- RUN – All features enabled except propulsion (motive force)
- PROPULSION – All features enabled
- START - This will transition to PROPULSION, including turning off non-essential loads to provide additional power for starting.

Power Mode States

Customer Action	Expected Vehicle Power Mode	S38 Vehicle On/Off Switch BCM Scan Tool Parameter	S38 Vehicle On/Off Switch Voltages
Vehicle OFF, S38 On/Off Vehicle Switch not pressed, Transmitter in Range	Vehicle Off Mode	Inactive	1.4 – 3.0 V (Switch Pressed) 3.35 – 4.26 V (Switch Released) 4.5 — 5.0 V (Switch Disconnected)
Vehicle OFF, S38 On/Off Vehicle Switch not pressed, Transmitter out of Range/Away from vehicle	Vehicle Off Mode	Inactive	
Vehicle in any Power Mode EXCEPT OFF, then Press the S38 On/Off Vehicle Switch Foot On or Off the Brake Pedal, Transmitter in Vehicle	Vehicle Off Mode	Active (pushed) / Inactive (not pushed)	
Vehicle in Propulsion Mode, momentarily Press and Release the		Active (pushed) Inactive (not pushed)	

Power Mode States (cont'd)

Customer Action	Expected Vehicle Power Mode	S38 Vehicle On/Off Switch BCM Scan Tool Parameter	S38 Vehicle On/Off Switch Voltages
S38 On/Off Vehicle Switch Foot On or Off the Brake Pedal, Transmitter out of Range/Away from vehicle	Run Mode, With DIC Message No Remote Detected Press Brake to Restart		
Vehicle Off Power Mode, then Press the S38 On/Off Vehicle Switch for less than 5 s with foot Off the Brake Pedal; Transmitter in Vehicle	Vehicle Accessory Mode	Active (pushed) / Inactive (not pushed)	
Vehicle Off Power Mode, then S38 On/Off Vehicle Switch with foot On the Brake Pedal; Transmitter in Vehicle	Vehicle Start/ Propulsion Mode (vehicle cranks then engine running (for Internal Combustion Engine) or Propulsion System Active for EV) power mode timeout is enabled	Active (pushed) / Inactive (not pushed)	
Vehicle Off Power Mode, then S38 On/Off Vehicle Switch with foot On the Brake Pedal for 5 to 10 s; Transmitter in Vehicle	Vehicle Start/ Propulsion Mode (vehicle cranks then Propulsion Mode Active) power mode timeout will be disabled.	Active (pushed) / Inactive (not pushed)	
Vehicle OFF Power Mode, then Press and Hold the S38 On/Off Vehicle Switch for 5 s with foot Off the Brake Pedal; Transmitter in Vehicle	Vehicle Run Mode (Ignition ON without the Propulsion system Active)	Active (pushed) / Inactive (not pushed)	
Vehicle OFF Power Mode, then Press and Hold the S38 On/Off Vehicle Switch for 5 s with foot Off the Brake Pedal; Transmitter in Vehicle	Vehicle Start/ Propulsion Mode (vehicle cranks then Propulsion Active) power mode timeout is disabled	Active (pushed) / Inactive (not pushed)	
Vehicle Propulsion Mode with vehicle speed detected above 4 km/h (2.5 MPH) press and hold S38 On/Off Vehicle Switch for 2 s or press and release it 2 times within 5 S.	Vehicle will transition from Propulsion Mode to Run Mode (Ignition On Propulsion system Inactive).	Active (pushed) / Inactive (not pushed)	
NOTE: If the transmitter is not moved for more than 1 hour it will become inactive.			

Service Mode

Service Mode is the Run Power Mode with power mode timeout disabled. This can only be done with the Service Tool.

Automatic Power Mode Timeouts

Note: If the Transmitter/Fob remains stationary and is not moved for one hour, it will go to sleep and may create a fob not in range condition.

This system is designed to prevent batteries from going dead in the event the ignition is left on while unattended, it is also designed to shut the vehicle off if left running unattended. After a Power Mode timeout, the Power Mode Master is responsible for shutting down the or transitioning the vehicle into the low parasitic sleep state “OFF” Power Mode. This Power Mode timeout strategy uses Vehicle Speed, Vehicle Power Mode, Parked Status and other Vehicle Conditions to make the timeout determination.

Accessory Power Mode

The Accessory Power Mode will timeout after approximately 5 minutes. The timer will Start once the system has determined it is in the Accessory Power Mode status. After the timer expires the Power Mode will change to the OFF Power Mode.

Run Power Mode

if the conditions listed below are met the Run Power Mode will timeout after approximately 40 minutes if the transmitter is in range, or 20 minutes if the transmitter is out of range. The timer will Start once the system has determined it is in the Run Power Mode status and all of the following conditions are met. After the timer expires the Power mode will change to OFF Power Mode.

If any of the following conditions are not met and/or if there is a change in the Brake Pedal or Clutch Pedal status, the Run Mode timeout timer will be disabled, and the timer will restart after all of the conditions are met again.

- Vehicle in Run Mode (Vehicle powered up S38 On/Off Vehicle Switch Green indicator on Propulsion Mode Inactive)
- Propulsion is Inactive
- Vehicle in Park.
- Vehicle Speed is 0 KM/MPH.
- Fast Idle is inactive (If Equipped).
- PTO Remote Start Status is inactive (If Equipped).
- Particulate Filter Cleaning Status is Inactive (if Equipped)
- S38 Vehicle On/Off switch was held for more than 5 to 10 seconds while starting the vehicle the actual time may vary based on model and/or year.

Propulsion Power Mode

If the following conditions listed below are met the Propulsion Power Mode will timeout after approximately 30 minutes if the transmitter is in range, or 15 minutes if the transmitter is out of range. The timer will Start once the system has determined it is in the Propulsion Power Mode status and all of the following conditions are met. After he timer expires the Power mode will change to the OFF Power Mode.

The Propulsion Power Mode timeout can be disabled with then vehicle in Off Power Mode, apply and continue to hold the brake pedal, then press and hold the S38 Vehicle On/Off switch for 5 to 10 seconds (the actual time may vary based on model and/or year). A DIC message will be displayed when Power Mode timeout is disabled.

If any of the following conditions are not met and/or if there is a change in the Brake Pedal or Clutch Pedal status, the Propulsion Mode timeout timer will be disabled, and the timer will restart after all of the conditions are met again.

- Vehicle in Propulsion Mode (Propulsion Active).
- Vehicle in Park.
- Vehicle Speed is 0 KM/MPH.
- Fast Idle is Inactive (If Equipped).
- PTO Remote Start Status is inactive (If Equipped).
- Particulate Filter Cleaning Status is Inactive (if Equipped)
- S38 Vehicle On/Off switch was held for more than 5 to 10 seconds while starting the vehicle the actual time may vary based on model and/or year.

Relay Controlled Power Mode

The BCM uses discrete push button switch inputs, transmitter in range status, current power mode state, and brake pedal position state to distinguish the correct power mode (Off, Accessory Mode, Run Mode, Start/Propulsion Mode). The BCM, after determining the desired power mode, will activate the appropriate relays for that power mode.

The retained accessory power relay remains on for a timed period after the Ignition Mode is OFF. Refer to *Retained Accessory Power Description and Operation on page 7-926* for more information on the retained accessory power function.

Push Button Start

The ignition mode switch has 2 LEDs that indicate the vehicle power mode Amber for Accessory Mode and Green for Run or Start/Propulsion Modes. When the vehicle is in the OFF mode, both LED’s will be OFF. Momentarily pressing the S38 On/Off Vehicle Switch button once, brake pedal not applied, the vehicle will enter into the Accessory Mode and the Amber LED will illuminate. The Accessory Mode will timeout after approximately 5 min to help reduce battery drain. With the ignition OFF, brake pedal not pressed, then pressing and holding the S38 On/Off Vehicle Switch for 5 s will place the vehicle in Run Mode (Ignition ON without the Propulsion Mode Active). The vehicle will stay powered up for approximately 40 minutes if the transmitter is in range, or 20 minutes if the transmitter is out of range, and the Green LED will illuminate.

With the ignition OFF brake pedal pressed, then press and release the iS38 On/Off Vehicle Switch, the vehicle will enter Start/Propulsion Mode and the Green LED will illuminate, the engine will crank and the engine will be running for Internal combustion engines (ICE), or Propulsion mode will go Active on Electric Vehicles (EV). The Propulsion Mode will timeout after approximately 30 minutes if the transmitter is in range, or 15 minutes if the transmitter is out of range. The timer will stop when the vehicle is shifted out of PARK or the brake pedal is pressed and released, the timer will reset after the vehicle is placed back in PARK with the Propulsion Mode Active.

Both LED’s have the voltage supplied from the body control module (BCM). The ignition mode switch sends the ignition mode switch status to the passive entry passive start module (PEPS) and to the BCM. The PEPS module sends a redundant signal to the BCM with the ignition mode switch status.

Transport Mode

Transport Mode is designed to reduce the parasitic load of some modules during shipping and/or during vehicle storage. Some features may be disabled or have reduced functionality while Transport Mode is ON. Transport Mode is enabled and disabled by either of the following methods:

- With the Scan Tool Diagnostics > Body Control Module > Control Functions > Power Mode.
- Turning the hazard flashers ON, apply and hold the brake pedal, then press and hold the ignition mode switch for greater than 15 s. For vehicles equipped with a DIC a message Transport Mode On when it is enabled and Transport Mode Off when it is disabled will be displayed for a predetermined amount of time. For vehicles equipped without a DIC, the battery indicator light will constantly flash on the Instrument Cluster when Transport Mode is enabled.

Battery Saver Mode

There are 7 different Battery Saver Modes. Battery Saver Modes 1 to 3 occur in Accessory and Run Power Modes (vehicle on propulsion system Inactive) if the battery voltage drops below approximately 11.5 V. Battery Saver Modes 4 to 7 occur in the Off Power Mode only. Battery Saver Modes 4 to 7 may set DTC's.

- Battery Saver Mode 1: DIC message “Battery Low, Start Vehicle”, 4 chimes
- Battery Saver Mode 2: DIC message “Battery Low, Start Vehicle”, Load Shed Level 3 is activated
- Battery Saver Mode 3: DIC message “Battery Low, Start Vehicle”, Radio/Infotainment shut off, Load Shed Level 3 active
- Battery Saver Mode 4: Battery Saver Mode Ignition Off – Parasitic Current draw of 100 mA or greater
- Battery Saver Mode 5: Battery Saver Mode Ignition Off – Parasitic Current draw of 1 A or greater
- Battery Saver Mode 6: Battery Saver Mode Ignition Off – Battery Voltage less than 12.0 V
- Battery Saver Mode 7: Battery Saver Mode Ignition Off – Battery Voltage less than 11.6 V

Load Shedding

Prior to Load shedding Idle Boost will occur, the idle speeds will be increased by 25 to 300 RPM to help maintain a normal battery voltage. Idle Boost may be noticeable to the driver. If the battery voltage continues to drop below a normal state then load shedding will go active and it will start to reduce electric loads for components that will not impact the safe operation of vehicle. At load shed levels 2 and 3 a DIC message will be displayed “Reducing Features To Save Battery”. When load shedding is active the customer may begin to notice features starting to have reduced functions or may become inoperative. Examples of affected loads are radio, HVAC blower(s) front and rear (if equipped), heated/ventilated seats, heated mirrors, rear defogger and other devices with heavy electrical draws. Idle Boost and load shed levels can be observed with the scan tool.

Idle Boost 1

Idle is increased by 25-100 RPM and generally is not noticeable to most drivers.

Idle Boost 2

Idle is increased by 50–200 RPM and generally is not noticeable to most drivers.

Idle Boost 3

Idle is increased by 100–300 RPM and may be noticeable to most drivers.

Load Shed Level 1

Reduces load current by 25%.

Load Shed Level 2

Reduces load current by 50%.

Load Shed Level 3

Electric loads for components that will not impact the safe operation of vehicle will be turned Off.

BCM Awake/Sleep States

The BCM is able to control or perform all of the BCM functions in the awake state. The BCM enters the sleep state when active control or normal monitoring of system functions has stopped and a time limit has passed. The BCM must detect certain wake-up inputs before entering the awake state. The BCM monitors for these inputs during the sleep state.

The BCM will enter the awake state if any of the following wake-up inputs are detected:

- Activity on the serial data line
- Detection of a battery reconnect
- Any door open signal
- Headlamps ON
- Ignition ON
- Park lamps ON
- Keyless entry or remote start message

The BCM will enter a sleep state when all of the following conditions exist:

- Ignition OFF, transmitter is out of range
- No activity exists on the serial data line.
- No outputs are commanded.
- No delay timers are actively counting.
- No wake-up inputs are present.

If all these conditions are met, the BCM will enter a low power or sleep condition.

Retained Accessory Power Description and Operation

Object-ID=5239624 Owner=Salkowski, Jakob LMD=09-Jan-2023 LMB=Blanzy, Ken

Retained Accessory Power

The Retained Accessory Power (RAP) & Interruptible RAP (IRAP) Circuits are controlled by the K9 Body Control Module (BCM). The BCM is the Power Mode Master, it utilizes various Vehicle inputs to determine the Vehicle Power Mode and sends this information via Serial Data and providing associated electrical signals to the entire vehicle for proper feature operation.

The BCM monitors the vehicles power modes, and door ajar/open switch status to determine whether the retained accessory power should be initiated and remain active or be terminated. The RAP output is optional based on the vehicles option contents. When utilized, the RAP Output control can be used to control a RAP Relay, it may provide direct power, or s serial data message to vehicle devices/modules from the BCM.

Retained Accessory Power Relay Coil Control Circuit (If Equipped)

The BCM keeps the device or relay (if equipped) energized during all power modes, except Off-Awake and Crank. The device(s) remain active for approximately 10 min after the Vehicle is placed into the OFF Power Mode, provided none of the doors are opened.

Retained accessory power will end when one of the following conditions are met:

- The BCM receives an input from any door ajar switch indicating the opening of the door after the OFF Power Mode is achieved.

  Note: If the BCM is receives a door open/ajar active signal when the vehicle is placed into the OFF Power Mode, the retained accessory power will not initiate.

- The BCM internal timer for the retained accessory power expires after approximately 10 min.

Systems powered by the retained accessory power control circuit during the retained accessory power mode are as follows:

Note: The vehicle may not be equipped with all components as listed below.

- 12 V Accessory Power Receptacle
- Cigarette Lighter Receptacle
- Window Switches
- Sunroof Control Module (If Equipped)
- Sunroof Switch (If Equipped)
- Mobile Device Wireless Charger Module
- Mobile Telephone Control Module (If Equipped)
- Traffic Data Receiver (If Equipped)
- Transmission Shift Lever Position Indicator (w/ floor mounted console gear shift)

Serial Data Controlled Retained Accessory Power

Retained accessory power systems controlled by serial data are as follows:

Radio

Radio retained accessory power activation/termination is the same as relay operation with one exception; the only door that will turn the radio off during retained accessory power is the driver door open/ajar switch. The USB Ports will function the same as the radio.

Vehicle Communication Interface Module (VCIM) (Onstar®) (If Equipped)

VCIM RAP activation/termination is the same as radio operation with 1 exception; if there is an active call and the vehicle is placed in the OFF Power Mode, the VCIM will remain in RAP mode, and keep the radio in RAP mode until the call is terminated.

Interruptible Retained Accessory Power

The Power Mode Master (PMM) Controls components as needed If equipped with a RAP relay, the BCM controls the Retained Accessory Power with an exception, Interruptible Retained Accessory Power (IRAP) is deactivated during transmitter authentication. During Transmitter Authentication the PMM will deactivate components including IRAP to prevent Radio Frequency (RF) Interference (RFI) that may cause a “NO REMOTE DETECTED” message to be displayed on the drivers information center.

Note: If transmitter Authentication occurs while in Run or Propulsion Modes, it is normal to for IRAP to be interrupted momentarily (i.e. items connected to auxiliary power ports or chargers may momentarily go off then come back on).

If a remote transmitter was not been previously detected, Transmitter Authentication can occurs under any of the following conditions:

- The drivers side front door is opened.
- The drivers side rear door is opened.
- The S38 Vehicle On/Off Switch is pressed.

BLANK

Section 8

Safety and Security

Driver Assistance Systems . . . 8-5
Description and Operation . . . 8-5
Forward Collision Alert Description and Operation . . . 8-5
Lane Departure Warning Description and Operation . . . 8-7
Safety Alert Seat Description and Operation . . . 8-8
Side Blind Zone Alert Description and Operation . . . 8-9
Immobilizer . . . 8-11
Schematic and Routing Diagrams . . . 8-11
Immobilizer Schematics . . . 8-12
Diagnostic Information and Procedures . . . 8-13
DTC B15EE . . . 8-13
DTC B1977 . . . 8-16
DTC B197D . . . 8-18
DTC B197F . . . 8-19
DTC B1980 . . . 8-20
DTC B1981 . . . 8-21
DTC B1987 . . . 8-22
DTC B1989 . . . 8-24
DTC B198A . . . 8-26
DTC P0513 . . . 8-27
DTC P0633 . . . 8-28
DTC P162B . . . 8-29
DTC P1631 . . . 8-30
DTC P1649 . . . 8-32
Symptoms - Immobilizer . . . 8-33
OnStar Stolen Vehicle Slowdown Active . . . 8-33
Repair Instructions . . . 8-33
Immobilizer System Component Programming . . . 8-33
Description and Operation . . . 8-35
Immobilizer Description and Operation . . . 8-35
Remote Vehicle Speed Limiting Description and Operation . . . 8-36
Parking Assistance Systems . . . 8-37
Specifications . . . 8-37
Fastener Specifications . . . 8-37
Schematic and Routing Diagrams . . . 8-37
Parking Assistance Systems Schematics . . . 8-38
Diagnostic Information and Procedures . . . 8-41
Parking Assistance Systems Component Replacement Reference . . . 8-41
DTC B0954, B0955, B0956, or B0957 . . . 8-42
DTC B0958, B0959, B0960, or B0961 . . . 8-45
DTC B0967 . . . 8-48
DTC B0968 . . . 8-50
DTC B1015 . . . 8-52
DTC B1405 (UD5) . . . 8-54
DTC B1405 (UD7) . . . 8-57
DTC P18CB . . . 8-59
Symptoms - Parking Assistance Systems . . . 8-59
Parking Assist System Malfunction . . . 8-60
Repair Instructions . . . 8-63
Parking Assist Control Module Replacement (Regular Cab) . . . 8-63
Parking Assist Control Module Replacement (Crew Cab, Double Cab) . . . 8-66
Front Parking Assist Alarm Outer Sensor Replacement . . . 8-68
Front Parking Assist Alarm Outer Sensor Replacement . . . 8-74
Front Parking Assist Alarm Sensor Replacement . . . 8-93
Front Parking Assist Alarm Sensor Replacement . . . 8-111
Front Parking Assist Alarm Sensor Bracket Replacement . . . 8-119
Front Parking Assist Alarm Sensor Bracket Replacement . . . 8-136
Front Parking Assist Alarm Sensor Bracket Replacement - Outer . . . 8-144
Rear Parking Assist Alarm Sensor Replacement . . . 8-150
Rear Parking Assist Alarm Sensor Replacement . . . 8-153
Rear Parking Assist Alarm Sensor Replacement - Outer . . . 8-157
Rear Parking Assist Alarm Sensor Bracket Replacement . . . 8-165
Rear Parking Assist Alarm Sensor Bracket Replacement . . . 8-170
Parking Assist Alarm Sensor Ring Replacement - Front . . . 8-176
Parking Assist Alarm Sensor Ring Replacement - Outer . . . 8-194
Parking Assist Alarm Sensor Ring Replacement - Rear . . . 8-204

Parking Assist Alarm Sensor Ring Replacement - Rear 8-209

Description and Operation 8-214

Parking Assist Description and Operation (UD7) 8-214

Parking Assist Description and Operation (UD5) 8-215

Remote Functions 8-218

Specifications 8-218

Fastener Specifications 8-218

Schematic and Routing Diagrams 8-219

Remote Function Schematics 8-220

Diagnostic Information and Procedures 8-223

DTC B1442 8-223

DTC B1444 8-226

DTC B1444 8-229

DTC B1451 8-232

DTC B1511 8-235

DTC B1513 8-238

DTC B1AAE 8-241

DTC B1AAF 8-244

DTC B1AEE 8-246

Symptoms - Remote Functions 8-247

Symptoms - Front Side Door Access Control Transmitter 8-247

Garage Door Opener Malfunction 8-247

Keyless Entry System Malfunction 8-249

Front Side Door Access Control Transmitter Malfunction 8-254

Keyless Entry Transmitter Pocket Location 8-257

Repair Instructions 8-259

Remote Control Door Lock and Theft Deterrent Transmitter Programming 8-259

Ignition Lock Key Transmitter Antenna Bracket Replacement 8-261

Low Frequency Instrument Panel Antenna Replacement 8-267

Low Frequency Console Antenna Replacement 8-279

Low Frequency Console Antenna Replacement 8-290

Low Frequency Console Number 2 Antenna Replacement 8-308

Low Frequency Rear Bumper Antenna Replacement 8-316

Remote Function Actuator Module Replacement (Crew Cab, Double Cab) 8-319

Remote Function Actuator Module Replacement (Regular Cab) 8-323

Garage Door Opener Transmitter Replacement 8-330

Description and Operation 8-336

Front Side Door Access Control Transmitter Description and Operation 8-336

Garage Door Opener Description and Operation 8-337

Keyless Entry System Description and Operation 8-337

Special Tools and Equipment 8-340

Seat Belts 8-341

Specifications 8-341

Fastener Specifications 8-341

Adhesives, Fluids, Lubricants, and Sealers 8-343

Schematic and Routing Diagrams 8-344

Seat Belt Schematics 8-345

Diagnostic Information and Procedures 8-346

DTC B1AD2 8-346

DTC B1AD3 8-349

Symptoms - Seat Belts 8-351

Seat Belt Does Not Retract 8-351

Seat Belt Guide Adjuster Stuck in Full Down Position 8-351

Seat Belt Retractor Does Not Function Properly or is Inoperative - Automatic Locking Retractor 8-352

Seat Belt Retractor Does Not Function Properly or is Inoperative - Overspool Lock 8-352

Seat Belt Retractor Does Not Function Properly or is Inoperative - Vehicle Sensing 8-353

Seat Belt Retractor Does Not Function Properly or is Inoperative - Belt Sensing 8-353

Seat Belt Retractor Does Not Function Properly or is Inoperative - Belt Twisting 8-354

Seat Belt Retractor Does Not Function Properly or is Inoperative - Guide Contamination 8-355

Noise Heard from Motorized Seat Belt Retractor 8-356

Seat Belt Buckle Does Not Function Properly and/or Seat Belt Warning Lamp Illuminated 8-356

Seat Belt Indicator Malfunction - Driver 8-356

Seat Belt Indicator Malfunction - Passenger 8-358

Seat Belt Service Precautions 8-360

Repair Instructions 8-360

Repairs and Inspections Required After a Collision 8-360

Seat Belt Retractor Guide Cleaning 8-361

Front Seat Belt Buckle Replacement 8-363

Front Seat Belt Opening Bezel Replacement (Front Belt) 8-366

Front Seat Belt Opening Bezel Replacement (Center Belt with Storage Armrest) 8-371

Front Seat Center Belt Buckle Replacement 8-375

Front Seat Center Belt Retractor Replacement (with Storage Armrest) 8-379

Rear Seat Belt Buckle Replacement 8-403

Rear Seat Center Belt Retractor Replacement 8-405

Front Seat Belt Guide Adjuster Replacement 8-408

Rear Seat Belt Retractor Replacement 8-414
Description and Operation 8-424
Seat Belt System Description and Operation 8-424
Supplemental Restraints 8-427
Specifications 8-427
Fastener Specifications 8-427
Adhesives, Fluids, Lubricants, and Sealers ... 8-432
Schematic and Routing Diagrams 8-432
SIR Schematics 8-433
Diagnostic Information and Procedures 8-437
DTC B0001 or B0002 8-437
DTC B0010 or B0011 8-440
DTC B0021 or B0029 8-443
DTC B0070 or B0072 8-446
DTC B007E or B007F 8-449
DTC B0090-B0098 8-452
DTC B10B4 or B120C 8-454
DTC B12D4 or B12D5 8-457
DTC B13A9 8-460
DTC B1491 8-463
DTC B15DF or B15E3 8-465
DTC B1619 or B161A 8-468
DTC B17F0 or B17F2 8-471
DTC B1A33 8-474
DTC B1A34 8-475
DTC B1A35 8-476
DTC B1A7A 8-478
DTC C006A 8-479
Symptoms - SIR 8-479
Airbag Indicator Malfunction - Driver 8-480
Airbag Indicator Malfunction - Passenger 8-481
SIR Disabling and Enabling 8-481
Repair Instructions 8-483
SIR Service Precautions 8-483
Airbag Front End Discriminating Sensor Replacement 8-483
Airbag Side Impact Sensor Replacement 8-487
Airbag Side Impact Sensor Replacement 8-491
Restraints Control Module Replacement (Regular Cab) 8-497
Restraints Control Module Replacement 8-499
Restraints Control Module Replacement 8-503
Steering Wheel Airbag Replacement 8-507
Steering Wheel Airbag Coil Replacement 8-513
Steering Wheel Airbag Coil Centering 8-534
Instrument Panel Airbag Replacement 8-535
Airbag Front Passenger Presence Module Replacement 8-539
Front and Rear Row Roof Rail Airbag Replacement 8-544
Front Seat Outboard Seat Back Airbag Replacement (Manual) 8-570
Front Seat Outboard Seat Back Airbag Replacement (Power) 8-574
Airbag Side Impact Rear Sensor Replacement (Double Cab) 8-578
Airbag Side Impact Rear Sensor Replacement (Crew Cab) 8-584
Airbag Side Impact Rear Sensor Replacement 8-590
Front Seat Belt Retractor Replacement (Regular Cab) 8-594
Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) 8-610
Front Seat Belt Anchor Plate Tensioner Replacement (Regular Cab) 8-626
Front Seat Belt Anchor Plate Tensioner Replacement (Double Cab, Crew Cab) 8-640
Repairs and Inspections Required After a Collision 8-655
Inflatable Restraint Module Handling and Scrapping 8-659
Pretensioner Handling and Scrapping 8-672
Description and Operation 8-680
Supplemental Inflatable Restraint System Description and Operation 8-680
Special Tools and Equipment 8-683
Theft Deterrent 8-684
Schematic and Routing Diagrams 8-684
Theft Deterrent System Schematics 8-685
Diagnostic Information and Procedures 8-686
DTC B113C 8-686
Symptoms - Theft Deterrent 8-687
Content Theft Deterrent Malfunction 8-687
Security Indicator Malfunction 8-688
Description and Operation 8-689
Theft Systems Description and Operation 8-689

BLANK

Safety and Security

Driver Assistance Systems

Description and Operation

Forward Collision Alert Description and Operation

Object-ID=5274530 Owner=Ware, Gregory LMD=20-Mar-2023 LMB=Ware, Gregory

Forward Collision Alert (UEU)

The forward collision alert system is a convenience feature of the B174W Frontview Camera – Windshield that can warn drivers of a possible front-end collision situation with a vehicle they are following. The B174W Frontview Camera – Windshield is located behind the windshield, looking out at the road ahead and detecting vehicles directly ahead. When a vehicle is detected ahead, a green icon is displayed. This indicator will turn amber if the driver is following too closely. If the system detects that the driver is seconds away from a possible front-end collision, it sends an alert. The P43 Collision Alert Indicators, which includes a series of red collision alert LEDs, will flash. An audible alert sound will simultaneously sound. If the vehicle is equipped with safety alert seat (HS1), both sides of the seat will pulse. The forward collision alert system can be set to "far," "medium," or "near" timing using the forward collision alert switch and can be turned off using this control or through the vehicle personalization.

Forward collision alert does not provide a warning to help avoid a crash unless it detects a vehicle. Forward collision alert may not detect a vehicle ahead if the B174W Frontview Camera – Windshield is blocked by dirt, snow, or ice, or if the windshield is damaged. It may also not detect a vehicle on winding or hilly roads, or in conditions that can limit visibility such as fog, rain, or snow, or if the headlamps or windshield are not cleaned or in proper condition. Keep the windshield, headlamps, and B174W Frontview Camera – Windshield area clean and in good repair.

Forward collision alert may provide unnecessary alerts for turning vehicles, vehicles in other lanes, objects that are not vehicles, or shadows. These alerts are normal operation and the vehicle does not need service.

Forward Automatic Braking (UHY)

Forward automatic braking detects vehicles ahead in your path that are traveling in the same direction and may help reduce crash severity or avoid the crash altogether by applying the brakes automatically or enhancing the driver's braking in some emergency front-end collision situations . It can provide braking assist, such as brake system pre-fill, or automatically brake the vehicle if an imminent collision is determined. This can help avoid or lessen the severity of crashes when driving in a forward gear. Depending on the situation, the vehicle may automatically brake moderately or hard. Forward automatic braking can only occur if a vehicle is detected. When a vehicle is detected ahead, a green icon is displayed. The forward automatic braking system works when driving in a forward gear between 8 km/h (5 mph) and 60 km/h (37 mph). It can detect vehicles up to approximately 60 m (197 ft) away.

If the system detects that the driver is seconds away from a possible front-end collision with the vehicle it is following, it will first send an alert. If the driver doesn't respond quickly or the situation happens suddenly, forward automatic braking enhances the driver's braking or automatically applies the brakes. Drivers can override automatic braking at any time by pressing the accelerator or by braking. If the system slows a vehicle to a complete stop, the electronic parking brake will apply. The electronic parking brake can be release in typical fashion by pressing the electronic parking brake switch.

Through vehicle personalization, the forward automatic braking can be set to the ALERT setting or turned completely off. This setting disables most automatic braking functions. The driver information center will display FORWARD COLLISION SYSTEM REDUCED or AUTOMATIC COLLISION PREP REDUCED. This is normal operation when the forward automatic braking or forward collision alert system is set to OFF or ALERT. This message is not present when the forward automatic braking or forward collision alert system are set to ALERT and BRAKE.

Forward Collision Alert/ Forward Automatic Braking Components

- B174W Frontview Camera – Windshield
- P16 Instrument Cluster
- P43 Collision Alert Indicators (except UV6)
- P29 Head-Up Display (UV6)
- Forward Collision Alert Switch
- Infotainment System
- Safety Alert Seat (HS1)

B174W Frontview Camera – Windshield

The B174W Frontview Camera – Windshield detects vehicles in front of the vehicle. The B174W Frontview Camera – Windshield communicates with the P16 Instrument Cluster via serial data to illuminate the appropriate amber or green vehicle ahead indicator or P43 Collision Alert Indicators. The B174W Frontview Camera – Windshieldalso communicates via serial data with the infotainment system to request audible alerts.

P16 Instrument Cluster

The P16 Instrument Cluster communicates via serial data with the B174W Frontview Camera – Windshield and will illuminate the amber or green vehicle ahead indicator as requested by the B174W Frontview Camera – Windshield. The P16 Instrument Cluster also controls the P43 Collision Alert Indicators.

P43 Collision Alert Indicators (except UV6)

The P43 Collision Alert Indicators are a series of red LEDs that will flash when approaching another vehicle too rapidly. The P43 Collision Alert Indicators are located in the upper instrument panel area and reflect off the windshield when illuminated.

The P43 Collision Alert Indicators receive power and ground and are discretely controlled by the P16 Instrument Cluster through a pair of low control circuits. When requested by the B174W Frontview Camera – Windshield, the P16 Instrument Cluster will pulse the low control circuits, flashing the LEDs as a visual alert that another vehicle is being approached too rapidly.

P29 Head-Up Display (UV6)

The P16 Instrument Cluster controls the P29 Head-Up Display via serial data. The P16 Instrument Cluster will command the P29 Head-Up Display to flash the collision alert indicator as a visual alert when approaching another vehicle too rapidly as requested by the B174W Frontview Camera – Windshield.

Forward Collision Alert Switch

The forward collision alert switch provides an input to the B174W Frontview Camera – Windshield to select the alert timing sensitivity when approaching another vehicle too rapidly. The forward collision alert switch is part of the S70L Steering Wheel Controls Switch – Left and provides inputs to the K9 Body Control Module, which then communicates with the B174W Frontview Camera – Windshield via serial data.

The K9 Body Control Module applies voltage and monitors a low signal voltage from the normally open switch. When the switch is pressed, the signal circuit is pulled low through a specific series of resistors, indicating that the system has been requested to change the alert timing sensitivity. The first button press will show the current alert timing setting on the driver information center. With every subsequent button press, the alert timing sensitivity is changed.

Infotainment System

The infotainment system controls the audible alerts for the forward collision alert system. If the vehicle is approaching another vehicle too rapidly, the B174W Frontview Camera – Windshield will command the infotainment system issue an audible alert to the driver.

Safety Alert Seat (HS1)

The K40 Seat Memory Control Module controls the haptic alert provided by the seats. If the vehicle is approaching another vehicle too quickly, the B174W Frontview Camera – Windshield will command the K40 Seat Memory Control Module to pulse both sides of the seat.

Forward Collision Alert and Forward Automatic Braking Operational Checks

If the forward collision alert system is off, inoperative, or not functioning, check the following:

- Verify there are no active driver information center messages and that no DTCs are set.
- Verify that the system is enabled through vehicle personalization. Vehicle personalization allows the system to be set to “Off,” “Beeps,” ”Alert,” “Safety Alert Seat,” or “Alert & Brake”.
- Attempt to replicate the customer concern. While driving, if the vehicle-ahead telltale display illuminates green when following a vehicle above 8 km/h (5 mph) , forward collision alert is operating properly.

If the driver is receiving false forward collision alerts, check the following:

- Verify the B174W Frontview Camera – Windshield is not blocked by dirt, snow, or ice, and the windshield is not damaged.
- The system may be identifying vehicles farther ahead than the customer is expecting. Forward collision alert detects vehicles within a distance of approximately 60 m (197 ft) and operates at speeds above 8 km/h (5 mph).
- Forward collision alert may provide unnecessary alerts to turning vehicles, vehicles in other lanes, objects that are not vehicles, or shadows. These alerts are normal operation and the vehicle does not need service.

If forward collision alert beeps, but the seat does not vibrate, check the following:

- Verify the vehicle is equipped with safety alert seat (RPO HS1).
- Verify there are no active driver information center messages and that no DTCs are set.
- Verify that the system is enabled through vehicle personalization: It may be set to “Beeps” or “Alert Only” instead of “Safety Alert Seat” or “Alert & Brake”.

If FORWARD COLLISION SYSTEM REDUCED or AUTOMATIC COLLISION PRE REDUCED is displayed on the driver information center, check the following:

- Verify that the system is enabled through vehicle personalization: It may be set to “Alert Only” instead of ”Off” or Alert & Brake”.

If SERVICE FRONT CAMERA is displayed on the driver information center, check the following:

- Verify there are no active driver information center messages and that no DTCs are set.
- If the message is only displayed upon startup, check the following:
  - – Verify the B174W Frontview Camera – Windshield is not blocked by dirt, snow, or ice, and the windshield is not damaged.
  - – Verify the vehicle is not parked closed to a wall or the B174W Frontview Camera – Windshield is not in an over-temperature condition, such as sitting for long periods in high ambient temperatures and direct sun.
- If the message is displayed beyond startup, check the following:
  - – Verify there are no active driver information center messages and that no DTCs are set.

If FRONT CAMERA IS BLOCKED is displayed on the driver information center, check the following:

- Check for any other driver information center service messages.
- Verify the B174W Frontview Camera – Windshield is not blocked by dirt, snow, or ice, and the windshield is not damaged.

If SERVICE DRIVER ASSIST is displayed on the driver information center, check the following:

- Check for any other driver information center service messages.
- Verify there are no active driver information center messages and that no DTCs are set.

Lane Departure Warning Description and Operation

Object-ID=5274533 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

The lane departure warning system is a convenience feature that utilizes the B174W Frontview Camera – Windshield to determine if the vehicle has unintentionally crossed a lane marking and issue a warning. The B174W Frontview Camera – Windshield is located behind the windshield, looking out at the road ahead and detecting any lane markings. When the vehicle unintentionally leaves a detected lane, visual and audible alerts are given to the driver. The visual alert cannot be changed, but the driver can select audible alerts in the vehicle personalization menus. Refer to the vehicle owner’s manual for vehicle personalization options.

The lane departure warning system utilizes the following components:

Lane Departure Warning Components

- B174W Frontview Camera – Windshield
- P16 Instrument Cluster
- Lane Departure Warning Switch
- Infotainment system
- Safety Alert Seat (HS1)

B174W Frontview Camera – Windshield

The B174W Frontview Camera – Windshield detects visual queues such as lane markings. When it is determined that the vehicle has unintentionally moved outside of the lane, visual and audible or haptic (if equipped) warning is given to the driver. The B174W Frontview Camera – Windshield receives an input from the lane departure warning switch and controls the lane departure warning switch indicator output. The B174W Frontview Camera – Windshield also communicates via serial data with the P16 Instrument Cluster and infotainment system to request visual and audible alerts.

P16 Instrument Cluster

The P16 Instrument Cluster contains green and amber lane departure warning indicators. These indicators inform the driver of the current status of the lane departure warning system and are controlled via serial data by the B174W Frontview Camera – Windshield. When the vehicle speed is above 56 km/h (35 MPH) and the system has detected the required lane markings and is ready to assist, the green indicator will be illuminated. If the vehicle has unintentionally left the lane, the amber indicator will flash.

Lane Departure Warning Switch

The lane departure warning switch provides an input to the B174W Frontview Camera – Windshield to turn the lane departure warning system on and off. The B174W Frontview Camera – Windshield applies voltage and monitors the lane departure warning switch signal circuit. The lane departure warning switch is a normally open switch. With the switch open, voltage seen at the B174W Frontview Camera – Windshield is high. When the lane departure warning switch is pressed, the switch is closed and the signal circuit is pulled to ground. With the switch closed, voltage seen at the B174W Frontview Camera – Windshield is low. The B174W Frontview Camera – Windshield will respond to this by activating or deactivating the lane departure warning system.

The lane departure warning switch also utilizes the lane departure warning indicator, which is part of the lane departure warning switch and is controlled by the B174W Frontview Camera – Windshield to indicate the operational status of the lane departure warning system. When the lane departure warning is enabled, the B174W Frontview Camera – Windshield will illuminate the indicator on the switch. The indicator receives voltage through a high control circuit from the K9 Body Control Module and is controlled through a low control circuit by the B174W Frontview Camera – Windshield.

Infotainment System

The infotainment system controls the audible alert for the lane departure warning. If the vehicle has unintentionally left the lane, the B174W Frontview Camera – Windshield will request via serial data an audible alert to the driver through the infotainment system

Safety Alert Seat (HS1)

The K40 Seat Memory Control Module controls the haptic alert provided by the seats. If the vehicle is approaching a lane marking, the B174W Frontview Camera – Windshield will command the K40 Seat Memory Control Module to pulse the appropriate P45 Seat Haptic Movement Motor that corresponds with the side of the vehicle approaching the lane marking..

Lane Departure Warning Operation

System Operational Modes

- Off State: The system has been turned off by the driver using the lane departure warning switch. The lane departure warning indicator located on the lane departure warning switch will not be illuminated.
- Not Ready To Assist: The system is enabled and the lane departure warning indicator located on the lane departure warning switch is illuminated, but the system is not ready to assist because one of the following conditions is true:
  - – Vehicle speed is less than 56 km/h (35 MPH). The system is designed to function at speeds greater than 56 km/h (35 MPH).
  - – The system cannot detect lane markings. This may be because there are no lane markings or the lane markings cannot be determined due to snow, rain, or other driving conditions.
  - – The windshield area in front of the camera or the camera lens is blocked by fog, dirt, damage to the windshield, or other elements that may prevent the camera from detecting lane markings.
- Ready To Assist: The system is enabled and ready to warn of the unintentional lane crossing. The system is ready to assist when the green lane departure warning indicator is illuminated on the P16 Instrument Cluster.

Lane Crossing Alerts

- A lane crossing alert consists of the following:
  - – The amber lane departure warning indicator located on P16 Instrument Cluster will flash.
  - – Three chimes are activated through the infotainment system
- When any of the following conditions occurs, the system will not give alerts:
  - – The appropriate turn signal is activated. An activated turn signal is interpreted as an intentional lane crossing.
  - – The operator makes an intentional steering maneuver.
  - – The operator makes an intentional accelerating maneuver.
  - – The operator makes an intentional braking maneuver.

Lane Departure Warning Operational Checks

If lane departure warning is not functioning, check the following:

- Verify the vehicle is equipped with lane departure warning (RPO UFL).
- Check for a SERVICE FRONT CAMERA or SERVICE DRIVER ASSIST message on the driver information center.
  - – If either message is present, an issues exists with the B174W Frontview Camera – Windshield that is affecting all camera functions, not just lane departure warning. Verify no DTCs are set and refer to the appropriate diagnostic procedure.
- Verify the lane departure warning indicator turns on and off when pressing the lane departure warning switch.
  - If the indicator does not turn on and off, verify no DTCs are set and refer to the appropriate diagnostic procedure.
- Operate the vehicle above 56 km/h (35 MPH) with good lane markings and no inclement weather (snow, rain, or low sun) and verify the green lane departure warning indicator is illuminated on the P16 Instrument Cluster.
  - – Verify there are no active driver information center messages and that no DTCs are set.

Safety Alert Seat Description and Operation

Object-ID=5274540 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

The safety alert seat uses pulsing driver seat vibrations to intuitively communicate the direction of a possible crash threat. Two P45 Seat Haptic Movement Motors are utilized to create the vibration and are located on the left and right sides of the seat cushion. Utilizing two motors allows the vibration to be localized to the left or right side of the seat, depending on the side of the vehicle generating the alert, or to vibrate both simultaneously.

Note: The following systems may not be available on all vehicles.

The following systems utilize the safety alert seat:

- Lane Departure Warning and Lane Keep Assist – Utilizes left or right-side pulses to alert drivers if they unintentionally drift out of their lane
- Rear Cross Traffic Alert – Utilizes left or right-side pulses to the direction of an approaching vehicle
- Forward Collision Alert – Simultaneously pulses on both sides to warn drivers of a possible collision with the vehicle that they're following
- Front Pedestrian Braking – Simultaneously pulses on both sides to warn drivers of a possible collision with a pedestrian
- Front Parking Assist, Rear Parking Assist, and Backing Warning (part of the Rear Automatic Braking system) – Simultaneously pulses on both sides to warn drivers of a possible low-speed collision

Safety Alert Seat Components

The active safety seat utilizes the following components:

- K40 Seat Memory Control Module
- P45LR Seat Haptic Movement Motor — Driver Left Rear
- P45RR Seat Haptic Movement Motor — Driver Right Rear

K40 Seat Memory Control Module

The K40 Seat Memory Control Module receives serial data messages from other modules and provides voltage to control the P45 Seat Haptic Movement Motors. The K40 Seat Memory Control Module will pulse the left, right, or both P45 Seat Haptic Movement Motors with the number of pulses requested over serial data. The K40 Seat Memory Control Module monitors the control circuits for open, short to ground, and short to voltage conditions and will set DTCs if a circuit fault is detected.

P45 Seat Haptic Movement Motor

The P45 Seat Haptic Movement Motor is DC motor located in the driver's seat bottom cushion. Two P45 Seat Haptic Movement Motors are used in the seat bottom cushion, positioned on the left and right side. An offset weight is attached to the motor. When activated, the spinning offset weight creates a vibration felt by the driver through the seat cushion.

Each P45 Seat Haptic Movement Motor receives a constant chassis ground. The motor is controlled by the K40 Seat Memory Control Module by providing voltage through a dedicated control circuit. When an alert is required, the K40 Seat Memory Control Module will apply voltage, activating the P45 Seat Haptic Movement Motor

Side Blind Zone Alert Description and Operation

Object-ID=5274346 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

The side blind zone alert system detects and reports “objects of interest" on either side of the vehicle, within a specified “blind spot” zone. The system is designed to alert the driver, with a visual display placed on the side view mirror, to the presence of objects of interest that may not be visible in the inside rearview mirror and outside rear view mirrors. Although this system is intended to help drivers avoid lane change collisions, it does not replace driver vision and therefore should be considered a lane change aid. Even with the side blind zone alert system, the driver must check carefully for objects outside of the reporting zone (e.g., a fast approaching vehicle) before changing lanes. In the event that the system senses a malfunction through its diagnostic routines, the system will be disabled and the driver will be visually notified.

When the system detects a vehicle in the side blind zone while driving forward, an amber warning symbol will light up in the appropriate outside mirror. This indicates that it may be unsafe to change lanes. If the driver then activates the turn signal, the amber warning symbol starts flashing as an extra warning not to change lanes.

Side blind zone alert is active when the vehicle is out of par, or the parking brake is off on manual transmission vehicles and at speeds up to approximately 140 km/h (87 MPH). If a vehicle is detected in the blind zone, the warning symbols will turn illuminate on the appropriate side. When the vehicle is started, both outside mirror displays will briefly come on to indicate that the system is operating. The warning symbols will vary brightness based on the ambient light conditions.

The side blind zone alert system is made up of the following components:

- B218L Side Object Sensor Module – Left
- B218R Side Object Sensor Module – Right
- A9A Outside Rearview Mirror – Driver
- A9B Outside Rearview Mirror – Passenger
- Safety Alert Seat (HS1)

B218 Side Object Sensor Module

The B218L Side Object Sensor Module – Left and B218R Side Object Sensor Module – Right are located on each side of the vehicle behind the rear fascia and are not directly visible from outside the vehicle. The B218 Side Object Sensor Modules use radar to determine the presence of objects nearby. When an object is detected in the side blind zone, the appropriate B218R Side Object Sensor Module – Right supplies voltage to illuminate the visual indicator on the appropriate A9 Outside Rearview Mirror. Each B218 Side Object Sensor Module is supplied B+ and ground. Both B218 Side Object Sensor Modules communicates with the vehicle via serial data.

A9 Outside Rearview Mirror

The A9A Outside Rearview Mirror – Driver and A9B Outside Rearview Mirror – Passenger each contain an icon that is backlit with high intensity, amber-colored LED's located on the mirror surface. The display brightness adapts to day/night conditions. The side blind zone alert indicator icon in the appropriate A9 Outside Rearview Mirror is illuminated if the specific B218 Side Object Sensor Module detects a vehicle in the side blind zone to inform the driver that there is a vehicle driving in the blind spot zone.

Safety Alert Seat (HS1)

The K40 Seat Memory Control Module controls the P45 Seat Haptic Movement Motors. The P45 Seat Haptic Movement Motors provide haptic alert to the driver. If an object is detected, the K40 Seat Memory Control Module will command pulses to the P45LR Seat Haptic Movement Motor – Driver Left Rear or P45RR Seat Haptic Movement Motor – Driver Right Rear, depending on the location of the object, as an alert to the driver.

Side Blind Zone Alert Operation

When the vehicle is started, both A9 Outside Rearview Mirror indicators will briefly come on to indicate that the system is operating. The system is designed to detect objects of interest as small as a 125cc motorcycle with rider. The detection zone starts at the outside rearview mirror and extends out to 3.5 m (11 ft) at the back corner of the vehicle and 3 m (10 ft) behind the vehicle at a height of 0.5 m (1.5 ft) and 2.0 m (6 ft) above the ground. The system may illuminate an indicator due to guardrails, signs, trees, shrubs, and other non-moving objects. This is normal system operation; the vehicle does not need service.

When the system detects a vehicle in the side blind zone or lane change alert area while driving forward, independent if passing a vehicle or being passed, an amber warning symbol will light up in the appropriate A9 Outside Rearview Mirror. This indicates that it may be unsafe to change lanes. If the driver then activates the turn signal, the amber warning symbol starts flashing as an extra warning not to change lanes.

Foul weather may affect the operation of the side blind zone and lane change alert systems. Occasional missed alerts can occur under normal circumstances and will increase in wet conditions. The number of missed alerts will increase with increased rainfall or road spray. Heavy rainfall, as well as mud, dirt, snow, ice, or slush build-up on the rear fascia, can completely disable the system.

If the vehicle is towing a trailer or has an object such as a bicycle rack attached to the rear of the vehicle, the side blind zone and lane change alert systems may not function properly and the indicators may illuminate intermittently or remain illuminated all the time.

Lane Change Alert Operation

An integrated function of the side blind zone alert system is lane change alert. Lane change alert supplements the side blind zone alert system by detecting approaching vehicles on either side of the vehicle that may not yet be in the side blind zone alert area. The detection zone for lane change alert starts at the outside rearview mirror and extends out to 3.5 m (11 ft) at the back corner of the vehicle and 70 m (230 ft) behind the vehicle at a height between 0.5 m (1.5 ft) and 2.0 m (6 ft) above the ground.

Rear Cross Traffic Alert Operation

Rear cross traffic alert displays a red warning triangle with a left or right pointing arrow on the infotainment display to warn of traffic coming from the left or right. This system detects objects coming from up to 20 m (65 ft) from the left or right side of the vehicle. When an object is detected, either three beeps sound from the left or right or three safety alert seat pulses occur on the left or right side, depending on the direction of the detected vehicle.

Driver Information Center Messages

SIDE BLIND ZONE ALERT OFF

This message indicates that the system has been disabled through the driver information center. Refer to the vehicle owner’s manual for instructions on how to set personalization options on the driver information center.

SERVICE SIDE DETECTION SYSTEM

This message indicates that the system requires service. When the message is displayed, the indicators will remain illuminated at all times, notifying the driver that the side blind zone system should not be relied upon when changing lanes. Since the sensors are also used for rear cross traffic alert, this feature will also be inoperative.

SIDE DETECTION SYSTEM TEMPORARILY UNAVAILABLE

This message indicates that the system has been temporarily disabled because the sensor is blocked or can otherwise not accurately detect vehicles or objects. Examples are snow, ice, or slush build-up or mud or dirt packed into the sensor area. A “Side Detection System Temporarily Unavailable” message will be displayed on the driver information center. The side blind zone system transitions back to the normal operating state when the blockage is removed. Bumper sticks, fascia damage, labels, and heavy rain may also cause this condition. The blockage determination is performed with the vehicle in a drive gear. After the blockage is removed, it may take 3-4 hours of driving to establish normal system function. Do not replace any components if a “Side Detection System Temporarily Unavailable” message is displayed until it is confirmed that clearing a blockage did not correct the concern.

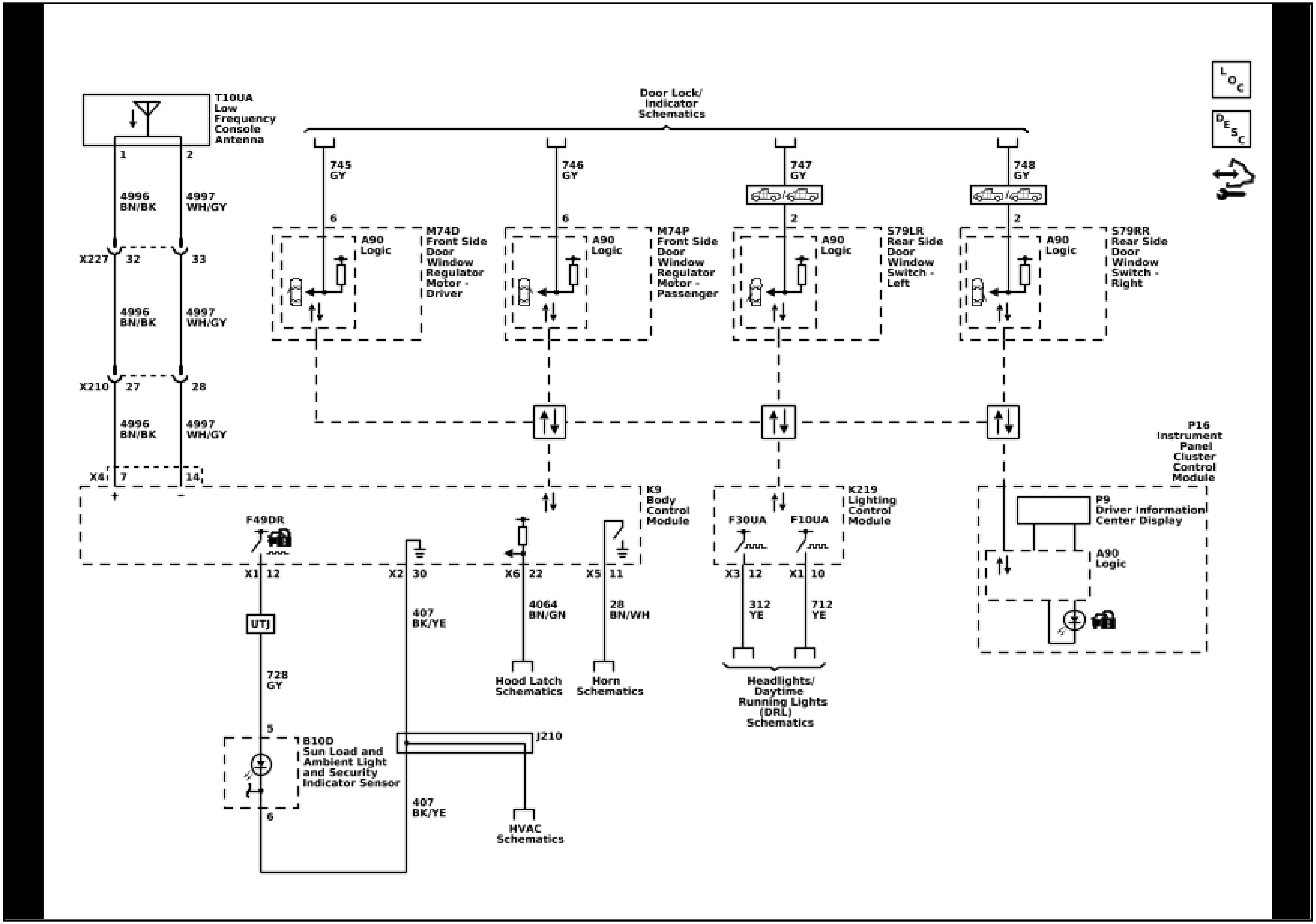
The rear cross traffic alert system will read the GPS latitude and longitude on the serial data bus and calculate if the vehicle is within a Radio Astronomy zone. These zones are located in Europe and Japan and require the sensors to be turned off. The “Side Detection System Unavailable” message will be displayed to the driver when this occurs.

Safety and Security

Immobilizer

Schematic and Routing Diagrams

Immobilizer Schematics Object-ID=6152407 (Immobilizer)


L O C
D E S C
T10UA Low Frequency Console Antenna
1
2
4996 BN/BK
4997 WH/GY
X227
32
33
4996 BN/BK
4997 WH/GY
X210
27
28
4996 BN/BK
4997 WH/GY
X4
7
14
+
-
Door Lock/ Indicator Schematics
745 GY
746 GY
747 GY
748 GY
6
6
2
2
A90 Logic
M74D Front Side Door Window Regulator Motor - Driver
A90 Logic
M74P Front Side Door Window Regulator Motor - Passenger
A90 Logic
S79LR Rear Side Door Window Switch - Left
A90 Logic
S79RR Rear Side Door Window Switch - Right
K9 Body Control Module
F49DR
X1 12
X2 30
X6 22
X5 11
UTJ
728 GY
407 BK/YE
4064 BN/GN
28 BN/WH
Hood Latch Schematics
Horn Schematics
K219 Lighting Control Module
F30UA
F10UA
X3 12
X1 10
312 YE
712 YE
Headlights/ Daytime Running Lights (DRL) Schematics
P16 Instrument Panel Cluster Control Module
P9 Driver Information Center Display
A90 Logic
5
B10D Sun Load and Ambient Light and Security Indicator Sensor
6
J210
407 BK/YE
HVAC Schematics

6150640

Diagnostic Information and Procedures

DTC B15EE

Object-ID=5605341 Owner=Day, Colin LMD=31-Jan-2022 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptors

DTC B15EE: Immobilizer Antenna Signal

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
4996	Immobilizer Antenna Signal – High Reference	B15EE 11	B15EE 13	B15EE 12	—
4997	Immobilizer Antenna Signal – Low Reference	B15EE 11	B15EE 13	B15EE 12	—

Circuit/System Description

The interior keyless entry antenna 1 is located inside of the center console underneath the cup holder and is used to establish low frequency communications with the keyless entry transmitter. As the ignition switch is pressed the BCM will transmit low frequency signals to this interior keyless entry antenna 1.

On vehicles with 9C1 the interior keyless entry antenna is located in the instrument panel.

Conditions for Running the DTC

- The ignition switch is pressed or all the doors are closed.
- Battery voltage is between 9–16 V.
- The immobilizer coil function is performed (transmitter learning or a low transmitter battery).
- The keyless entry transmitter is positioned outside of interior antenna range.

Conditions for Setting the DTC

B15EE 11

The body control module detects a short to ground on the interior keyless entry antenna 1 signal circuit three or more times.

B15EE 12

The body control module detects a short to voltage on the interior keyless entry antenna 1 signal circuit three or more times.

B15EE 13

The body control module detects an open on the interior keyless entry antenna signal 1 circuit three or more times.

Action Taken When the DTC Sets

- Doors will not unlock/lock when the exterior door handle button is pressed.
- Reduced or no coverage of the keyless entry transmitter inside the vehicle when the ignition switch is pressed or all doors are closed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 40 malfunction-free ignition cycles.
- The keyless entry transmitter is positioned inside of interior antenna range.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the appropriate T10 Low Frequency Antenna, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Activate the antenna by pressing the Stop/Start switch.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Activate the antenna by pressing the Stop/Start switch.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the appropriate T10 Low Frequency Antenna.
11. Activate the antenna by pressing the Stop/Start switch a minimum of three times to meet the conditions for setting the DTC.
12. Verify DTC B15EE is not set.

⇒ **If DTC B15EE is set**

Replace the K9 Body Control Module.

⇓ **If DTC B15EE is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Low Frequency Console Antenna Replacement on page 8-279 or Low Frequency Console Antenna Replacement on page 8-290 (Without 9C1)
- Control Module References for module replacement, programming, and setup

DTC B1977

Object-ID=5279732 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B1977: Telematics Requested Immobilization

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

As part of the vehicle telematics enhanced services, a request may be sent to the body control module (BCM) to disable vehicle starting. If a valid message is received by the BCM requesting that starting be disabled, the start enable message will not be sent to the engine control module (ECM).

Conditions for Running the DTC

The BCM continuously monitors for this DTC.

Conditions for Setting the DTC

A start disable message has been received from the telematics module.

Action Taken When the DTC Sets

Vehicle starting will be suspended and the security indicator will be illuminated.

Conditions for Clearing the DTC

- A current DTC will clear when the telematics start disable request is no longer received.
- A history DTC will clear after 100 ignition cycles in which the telematic start disable request is not seen.

Diagnostic Aids

- DTC B1977 is only an indicator that a start disable request has been received from the vehicle telematics system and does not indicate a fault in the immobilizer or telematics system.
- To remove the start disable request, the vehicle account must be updated with the OnStar stolen vehicle team. This will require that a law enforcement agency or the customer contact OnStar to indicate that the vehicle has been successfully and safely recovered.
- If the OnStar system has been disabled or damage during a theft attempt, the system will not be able to communicate and the start disable request will not be removed. OnStar must be functioning properly for the start disable request to be removed.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify the OnStar system is not damaged and is operating properly, with no DTCs set.

⇒ **If the OnStar system is damaged, inoperative, or any OnStar DTCs are set**

These concerns must be corrected before the start disable can be removed.

⇓ **If the OnStar system is not damaged and is operating properly**

2. Press the blue OnStar button and ask the advisor to be transferred to the stolen vehicle team to verify the vehicle account has been updated.
3. Verify that OnStar is aware the vehicle has been recovered and that the vehicle account has been updated.

⇒ **If OnStar has not been notified that the vehicle has been recovered**

Contact the customer and advise them that for security purposes, they must contact OnStar and the law enforcement agency to update the vehicle account.

⇓ **If the account has been properly updated**

4. Once the vehicle account has been updated and the start disable request has been removed, DTC B1977 will transition to a history DTC. Clear the history DTC.

DTC B197D

Object-ID=5279897 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B197D: No Environment Identifier Received from Restraints Control Module

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

The Restraints Control Module sends the BCM a message telling the BCM that the correct Restraints Control Module is present. The message is sent and verified on every cycle of the key. If the BCM receives an incorrect response or no response at all, vehicle starting is disabled.

Conditions for Running the DTC

The vehicle is switched from OFF to RUN or propulsion.

Conditions for Setting the DTC

The BCM receives an incorrect response or no response at all for at least 10 seconds of the vehicle switched to RUN or propulsion.

Action Taken When the DTC Sets

Vehicle starting will be disabled if two or more modules set the No Environment Identifier Received DTC.

Conditions for Clearing the DTC

- A current DTC will be cleared when the module sends the correct message.
- A history DTC will clear after 40 ignition cycles in which the correct message is sent.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Perform the Programming and Setup procedure for the K36 Restraints Control Module.
2. Verify the DTC does not set after programming.

⇒ **If the DTC sets after programming**

Replace the K36 Restraints Control Module.

⇓ **If the DTC does not set after programming**

Note: To set the DTC the BCM must see an incorrect response or no response at all for at least 10 seconds of the vehicle switched to RUN or propulsion.

3. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

DTC B197F

Object-ID=5279899 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B197F: No Environment Identifier Received From Instrument Panel Cluster Control Module

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

The Instrument Panel Cluster Control Module sends the BCM a message telling the BCM that the correct Instrument Panel Cluster Control Module is present. The message is sent and verified on every cycle of the key. If the BCM receives an incorrect response or no response at all, vehicle starting is disabled.

Conditions for Running the DTC

The vehicle is switched from OFF to RUN or propulsion.

Conditions for Setting the DTC

The BCM receives an incorrect response or no response at all for at least 10 seconds of the vehicle switched to RUN or propulsion.

Action Taken When the DTC Sets

Vehicle starting will be disabled if two or more modules set the No Environment Identifier Received DTC.

Conditions for Clearing the DTC

- A current DTC will be cleared when the module sends the correct message.
- A history DTC will clear after 40 ignition cycles in which the correct message is sent.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Perform the Programming and Setup procedure for the P16 Instrument Panel Cluster Control Module.
2. Verify the DTC does not set after programming.

⇒ **If the DTC sets after programming**

Replace the P16 Instrument Panel Cluster Control Module.

⇓ **If the DTC does not set after programming**

Note: To set the DTC the BCM must see an incorrect response or no response at all for at least 10 seconds of the vehicle switched to RUN or propulsion.

3. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module Referencesfor module replacement, programming, and setup.

DTC B1980

Object-ID=5279902 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B1980: No Environment Identifier Received From Brake System Control Module 1

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

The Brake System Control Module 1 sends the BCM a message telling the BCM that the correct Brake System Control Module 1 is present. The message is sent and verified on every cycle of the key. If the BCM receives an incorrect response or no response at all, vehicle starting is disabled.

Conditions for Running the DTC

The vehicle is switched from OFF to RUN or propulsion.

Conditions for Setting the DTC

The BCM receives an incorrect response or no response at all for at least 10 seconds of the vehicle switched to RUN or propulsion.

Action Taken When the DTC Sets

Vehicle starting will be disabled if two or more modules set the No Environment Identifier Received DTC.

Conditions for Clearing the DTC

- A current DTC will be cleared when the module sends the correct message.
- A history DTC will clear after 40 ignition cycles in which the correct message is sent.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Perform the Programming and Setup procedure for the K160 Brake System Control Module.
2. Verify the DTC does not set after programming.

⇒ **If the DTC sets after programming**

Replace the K160 Brake System Control Module.

⇓ **If the DTC does not set after programming**

Note: To set the DTC the BCM must see an incorrect response or no response at all for at least 10 seconds of the vehicle switched to RUN or propulsion.

3. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

DTC B1981

Object-ID=5279904 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B1981: No Environment Identifier Received From Lighting Control Module

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

The Lighting Control Module sends the BCM a message telling the BCM that the correct Lighting Control Module is present. The message is sent and verified on every cycle of the key. If the BCM receives an incorrect response or no response at all, vehicle starting is disabled.

Conditions for Running the DTC

The vehicle is switched from OFF to RUN or propulsion.

Conditions for Setting the DTC

The BCM receives an incorrect response or no response at all for at least 10 seconds of the vehicle switched to RUN or propulsion.

Action Taken When the DTC Sets

Vehicle starting will be disabled if two or more modules set the No Environment Identifier Received DTC.

Conditions for Clearing the DTC

- A current DTC will be cleared when the module sends the correct message.
- A history DTC will clear after 40 ignition cycles in which the correct message is sent.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Perform the Programming and Setup procedure for the K219 Lighting Control Module.
2. Verify the DTC does not set after programming.

⇒ **If the DTC sets after programming**

Replace the K219 Lighting Control Module.

⇓ **If the DTC does not set after programming**

Note: To set the DTC the BCM must see an incorrect response or no response at all for at least 10 seconds of the vehicle switched to RUN or propulsion.

3. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

DTC B1987

Object-ID=5279906 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B1987: Environment Identification

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

When certain modules are programmed and configured during installation, the module learns a specific environment identifier which is unique to the vehicle. The environment identifier is used to prevent the swapping modules between vehicles. The body control module (BCM) is the keeper of the environment identifier. The Instrument Cluster, Electronic Brake Control Module, HVAC Control Module, Inflatable Restraint Sensing and Diagnostic Module, engine control module (ECM), and Steering Column Lock Module (if equipped) each learn the environment identifier during their configuration process. During vehicle operation, the BCM sends the immobilizer identifier as a challenge and each module responds to the challenge by sending the environment identifier back to the BCM. If the BCM sends an incorrect immobilizer identifier or a specific number of incorrect environment identifiers are received, vehicle starting is disabled.

Conditions for Running the DTC

Ignition is in the ACCESSORY or RUN position.

Conditions for Setting the DTC

An incorrect immobilizer identifier was broadcast by the BCM.

Action Taken When the DTC Sets

- The security indicator in the instrument cluster will illuminate.
- Vehicle starting will be disabled.

Conditions for Clearing the DTC

A current DTC will be cleared when the BCM broadcasts a correct immobilizer identifier.

Diagnostic Aids

If BCM programming is not completed after BCM replacement, the immobilizer identifier will not be learned. If DTC B389A sets immediately after the replacement and programming of a BCM, perform the programming procedure again.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify DTC B1987 did not set immediately following the replacement and programming of the K9 Body Control Module.

⇒ **If the DTC set immediately after the replacement and programming of the K9 Body Control Module**

The immobilizer learn procedure was not properly completed. Perform the BCM immobilizer learn using the body control module IMMO Function with Existing Transponder or Remote Key in SPS. Refer to *Immobilizer System Component Programming on page 8-33*
.

⇓ **If the DTC did not set immediately after the replacement and programming of the K9 Body Control Module**

2. Verify DTC B1987 is not set in any of the control modules listed below:
   - K20 Engine Control Module
   - K36 Inflatable Restraint Sensing and Diagnostic Module
   - K17 Electronic Brake Control Module
   - K33 HVAC Control Module

- P16 Instrument Cluster
- K60 Steering Column Lock Module (if equipped)

⇒ **If DTC B198A is set in any of the modules**

Refer to *DTC B198A on page 8-26*.

⇓ **If DTC B198A is not set in any of the modules**

3. Perform the K9 Body Control Module immobilizer learn using body control module IMMO Function with Existing Transponder or Remote Key in SPS. Refer to *Immobilizer System Component Programming on page 8-33*.
4. Verify DTC B1987 does not set after programming.

⇒ **If the DTC sets after programming**

Replace the K9 Body Control Module.

⇓ **If the DTC does not set after programming**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

DTC B1989

Object-ID=5279906 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B1987: Environment Identification

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

When certain modules are programmed and configured during installation, the module learns a specific environment identifier which is unique to the vehicle. The environment identifier is used to prevent the swapping modules between vehicles. The body control module (BCM) is the keeper of the environment identifier. The Instrument Cluster, Electronic Brake Control Module, HVAC Control Module, Inflatable Restraint Sensing and Diagnostic Module, engine control module (ECM), and Steering Column Lock Module (if equipped) each learn the environment identifier during their configuration process. During vehicle operation, the BCM sends the immobilizer identifier as a challenge and each module responds to the challenge by sending the environment identifier back to the BCM. If the BCM sends an incorrect immobilizer identifier or a specific number of incorrect environment identifiers are received, vehicle starting is disabled.

Conditions for Running the DTC

Ignition is in the ACCESSORY or RUN position.

Conditions for Setting the DTC

An incorrect immobilizer identifier was broadcast by the BCM.

Action Taken When the DTC Sets

- The security indicator in the instrument cluster will illuminate.
- Vehicle starting will be disabled.

Conditions for Clearing the DTC

A current DTC will be cleared when the BCM broadcasts a correct immobilizer identifier.

Diagnostic Aids

If BCM programming is not completed after BCM replacement, the immobilizer identifier will not be learned. If DTC B389A sets immediately after the replacement and programming of a BCM, perform the programming procedure again.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify DTC B1987 did not set immediately following the replacement and programming of the K9 Body Control Module.

⇒ **If the DTC set immediately after the replacement and programming of the K9 Body Control Module**

The immobilizer learn procedure was not properly completed. Perform the BCM immobilizer learn using the body control module IMMO Function with Existing Transponder or Remote Key in SPS. Refer to *Immobilizer System Component Programming on page 8-33*
.

⇓ **If the DTC did not set immediately after the replacement and programming of the K9 Body Control Module**

2. Verify DTC B1987 is not set in any of the control modules listed below:
   - K20 Engine Control Module
   - K36 Inflatable Restraint Sensing and Diagnostic Module
   - K17 Electronic Brake Control Module
   - K33 HVAC Control Module

- P16 Instrument Cluster
- K60 Steering Column Lock Module (if equipped)

⇒ **If DTC B198A is set in any of the modules**

Refer to *DTC B198A on page 8-26*.

⇓ **If DTC B198A is not set in any of the modules**

3. Perform the K9 Body Control Module immobilizer learn using body control module IMMO Function with Existing Transponder or Remote Key in SPS. Refer to *Immobilizer System Component Programming on page 8-33*.
4. Verify DTC B1987 does not set after programming.

⇒ **If the DTC sets after programming**

Replace the K9 Body Control Module.

⇓ **If the DTC does not set after programming**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

DTC B198A

Object-ID=5279908 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B198A: Incorrect Immobilizer Identifier Received

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

When certain modules are programmed and configured during installation, the module learns a specific environment identifier which is unique to the vehicle. The environment identifier is used to prevent the swapping modules between vehicles. The body control module (BCM) is the keeper of the environment identifier. The instrument cluster, electronic brake control module, HVAC control module, inflatable restraint sensing and diagnostic module, engine control module (ECM), and steering column lock module (if equipped) each learn the environment identifier during their configuration process. During vehicle operation, the BCM sends the immobilizer identifier as a challenge and each module responds to the challenge by sending the environment identifier back to the BCM. If the BCM sends an incorrect immobilizer identifier or a specific number of incorrect environment identifiers are received, vehicle starting is disabled.

Conditions for Running the DTC

Ignition is in the ACCESSORY or RUN position.

Conditions for Setting the DTC

The control module's environment identifier does not match the environment identifier stored by the BCM.

Action Taken When the DTC Sets

- The security indicator in the instrument cluster will illuminate.
- Vehicle starting will be disabled.

Conditions for Clearing the DTC

A current DTC will be cleared when the module learns a correct environment identifier.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Perform the Programming and Setup procedure for the control module that set DTC B198A.

   Note: When performing the following step, Immobilizer System Component Programming, the module may also need to be reset by using the SPS function Prepare For Removal.

2. Perform the Immobilizer System Component Programming*Immobilizer System Component Programming on page 8-33*.
3. Verify DTC B198A does not set after programming.

⇒ **If the DTC sets after programming**

Replace the control module that set the DTC.

⇓ **If the DTC does not set after programming**

4. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

DTC P0513

Object-ID=2535702 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC P0513: Immobilizer Key Incorrect

Circuit/System Description

The body control module (BCM) sends the pre–release information to the engine control module (ECM) via the serial data circuit. The ECM then sends a challenge to the BCM. Both the ECM and BCM perform a calculation on this challenge. If the calculated response from the BCM equals the calculation performed by the ECM, the ECM will allow vehicle starting.

Conditions for Running the DTC

Ignition is in the ACCESSORY or RUN position.

Conditions for Setting the DTC

The calculated response from the BCM does not equal the calculation performed by the ECM.

Action Taken When the DTC Sets

- The security indicator in the instrument cluster will illuminate.
- Vehicle starting will be disabled.

Conditions for Clearing the DTC

- A current DTCwill be cleared when a valid calculation is received.
- A history DTC will be cleared after 40 malfunction-free ignition cycles.

Diagnostic Aids

DTC P0513 may be caused by a loose connection or intermittent poor continuity on the ECM ground or at the negative battery cable. Be sure to check the ECM ground(s) and negative battery cable if normal system diagnosis does not correct the concern.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify there are no immobilizer DTCs set in the K9 Body Control Module.

⇒ **If any immobilizer DTCs are set in the K9 Body Control Module**

⇓ **If no immobilizer DTCs are set in the K9 Body Control Module**

2. Perform the K9 Body Control Module immobilizer learn using the body control module IMMO Function with Existing Transponder or Remote Key in SPS. Refer to *Immobilizer System Component Programming on page 8-33*.
3. Verify the engine starts after the K9 Body Control Module completes the learn procedure.

⇒ **If the engine does not start**

Perform the K20 Engine Control Module immobilizer learn using the engine control module IMMO Learn in SPS. Refer to *Immobilizer System Component Programming on page 8-33*.

⇓ **If the engine starts**

4. All OK.

DTC P0633

Object-ID=2535703 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC P0633: Immobilizer Key Not Programmed

Circuit/System Description

When learning the immobilizer data, as well as the challenge and response sequence, the engine control module (ECM) is placed in learn mode. DTC P0633 will set automatically as an indicator that the system is in learn mode and not as a fault indicator. Once the immobilizer data and challenge/response are learned, learn mode will be exited when the engine is successfully started. If the ECM does not exit learn mode, DTC P0633 will remain current and indicate a fault.

Conditions for Running the DTC

The ECM is in learn mode.

Conditions for Setting the DTC

DTC P0633 will set any time the ECM enters learn mode.

Action Taken When the DTC Sets

The security indicator in the instrument cluster will illuminate.

Conditions for Clearing the DTC

- A current DTC will be cleared upon a successful engine start after exit of learn mode.
- A history DTC will be cleared after 100 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note: DTC P0633 will clear upon a successful engine start. Any malfunction that will cause a no-start condition will prevent DTC P0633 from clearing. Prior to diagnosing DTC P0633, ensure that all power moding and engine control systems are operating properly and all conditions that may cause a no-start have been corrected. Do not replace the K20 Engine Control Module. Replacing the K20 Engine Control Module will not correct the no-start condition.

1. Verify there are no immobilizer DTCs set in the K9 Body Control Module.

⇒ **If any immobilizer DTCs are set in the K9 Body Control Module**

⇓ **If no immobilizer DTCs are set in the K9 Body Control Module**

2. Perform the K20 Engine Control Module immobilizer learn using the engine control module IMMO Learn in SPS. Refer to *Immobilizer System Component Programming on page 8-33*.
3. Verify the engine starts after the K20 Engine Control Module completes the learn procedure.

⇒ **If the engine does not start**

An undiagnosed no-start condition exists. Refer to the appropriate subsection and diagnostic to correct the no-start condition.

⇓ **If the engine starts**

4. All OK.

DTC P162B

Object-ID=6199817 Owner=Day, Colin LMD=18-Nov-2022 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC P162B: Remote Vehicle Speed Limiting Signal Message Counter Incorrect

Circuit/System Description

When a remote slow-down request is sent from OnStar, the vehicle communication interface control module sends a serial data message to the engine control module (ECM) indicating that reduced vehicle speed has been requested. Once the request is active, the ECM begins reducing engine torque to match the requested vehicle speed and the REDUCED ENGINE POWER message is displayed.

Conditions for Running the DTC

- The engine run time is greater than 5 s
- A remote slow-down request is sent from OnStar

Conditions for Setting the DTC

- The VIN embedded in the slow-down request does not match the VIN stored in the ECM.
- The rolling code counter embedded in the slow-down request does not increment for ten consecutive messages.

Action Taken When the DTC Sets

- ECM ignores all reduced vehicle speed request messages from the vehicle communication interface module.
- The ECM stores DTC P162B in history.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear after 40 malfunction-free ignition cycles have occurred.

Reference Information

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Remote Vehicle Speed Limiting Description and Operation on page 8-36

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify the vehicle is equipped with OnStar (RPO UE1) and DTC P162B is set

⇒ **If the vehicle is not equipped with OnStar (RPO UE1) and DTC P162B is set**

Replace the ECM.

⇓ **If the vehicle is equipped with OnStar (RPO UE1) and DTC P162B is set**

2. Perform the Remote Vehicle Speed Limiting Reset procedure with the scan tool.
3. Verify DTC P162B is not set.

⇒ **If DTC P162B is set**

3.1. Reprogram the ECM.

3.2. Verify the DTC does not set while operating the vehicle within the Conditions for Running the DTC.

⇒ If the DTC sets, replace the ECM. If the DTC continues to set after ECM replacement, replace the vehicle communication interface module.

⇓ If the DTC does not set

3.3. All OK.

⇓ **If DTC P162B is not set**

4. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

DTC P1631

Object-ID=4790457 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC P1631 : Immobilizer Fuel Enable Signal Not Correct

Symptom Byte Information: Symptom Byte List

Circuit/System Description

For an overview of the component/system, refer to: *Immobilizer Description and Operation on page 8-35*

Component	Description
K9 Body Control Module	Depending on the version, the control module can support different functions: • Immobilizer Function • Horn • Central Door Locking • Power Mode Control • Ignition Key/Shifter Interlock The control module also reads various switches and sensors and makes their values available via serial data.
K20 Engine Control Module	The control module contains a microprocessor used to process input data to control outputs. The control module controls a series of actuators to ensure optimal engine performance. The control module does this by reading values from a variety of sensors, interprets the data and adjusts the engine actuators accordingly.

Conditions for Running the DTC

- Ignition » On / Vehicle » In Service Mode
- Ignition in the accessory position.

Conditions for Setting the DTC

K20 Engine Control Module = Learn

Actions Taken When the DTC Sets

Security Indicator = On

Conditions for Clearing the DTC

- K20 Engine Control Module ≠ Learn
- A history DTC will clear after 100 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition » On / Vehicle » In Service Mode
2. Verify there are no DTCs set related to the following component/system: K89 Immobilizer Control Module

⇒ **If other DTCs are set**

Refer to: Diagnostic Trouble Code (DTC) List - Vehicle

⇓ **If no other DTCs are set**

3. Perform the SPS function: Z1 Immobilizer Function — K9 Body Control Module Refer to: *Immobilizer System Component Programming on page 8-33*

4. Engine » Crank
5. Verify the function: Engine = Running

⇒ **If the engine does not start**

Perform the SPS function: Z1 Immobilizer Function — K20 Engine Control Module Refer to: *Immobilizer System Component Programming on page 8-33*

⇓ **If the engine starts**

6. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- For control module replacement, programming, and setup refer to: Control Module References

DTC P1649

Object-ID=4820290 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC P1649 : Immobilizer Security Code Not Programmed

Symptom Byte Information: Symptom Byte List

Circuit/System Description

For an overview of the component/system, refer to: *Immobilizer Description and Operation on page 8-35*

Component	Description
K9 Body Control Module	Depending on the version, the control module can support different functions: • Immobilizer Function • Horn • Central Door Locking • Power Mode Control • Ignition Key/Shifter Interlock The control module also reads various switches and sensors and makes their values available via serial data.
K20 Engine Control Module	The control module contains a microprocessor used to process input data to control outputs. The control module controls a series of actuators to ensure optimal engine performance. The control module does this by reading values from a variety of sensors, interprets the data and adjusts the engine actuators accordingly.

Conditions for Running the DTC

K20 Engine Control Module = Learn

Conditions for Setting the DTC

K20 Engine Control Module — Security Code ≠ Learn

Actions Taken When the DTC Sets

Security Indicator = On

Conditions for Clearing the DTC

- Engine = Running — Learn » Exit
- A history DTC will clear after 100 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition » On / Vehicle » In Service Mode
2. Verify there are no DTCs set related to the following component/system: K9 Body Control Module

⇒ **If other DTCs are set**

Refer to: Diagnostic Trouble Code (DTC) List - Vehicle

⇓ **If no other DTCs are set**

3. Perform the SPS function: K20 Engine Control Module Refer to: *Immobilizer System Component Programming on page 8-33*
4. Engine » Crank

5. Verify the function: Engine = Running

⇒ **If the engine does not start**

Replace the component: K20 Engine Control Module

⇓ **If the engine starts**

6. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

For control module replacement, programming, and setup refer to: Control Module References

Symptoms - Immobilizer

Object-ID=2486497 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Important: The following steps must be completed before using the symptom tables.

1. Perform the Diagnostic System Check - Vehicle before using the symptom tables in order to verify that all of the following are true:
   - There are no DTCs set.
   - The control modules can communicate via the serial data links.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to *Immobilizer Description and Operation on page 8-35*.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions.

Symptom List

Refer to *OnStar Stolen Vehicle Slowdown Active on page 8-33* to diagnose the symptom.

OnStar Stolen Vehicle Slowdown Active

Object-ID=2554512 Owner=Day, Colin LMD=25-May-2021 LMB=Day, Colin

Diagnostic Instructions

Note: This procedure is not used in Brazil.

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Circuit/System Description

When a remote slow-down request is sent from OnStar, the Telematics Communication Interface Control Module sends a serial data message to the engine control module (ECM) indicating that reduced vehicle speed has been requested. Once the request is active, the ECM begins reducing engine torque to match requested vehicle speed and the REDUCED ENGINE POWER message is displayed.

Reference Information

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Remote Vehicle Speed Limiting Description and Operation on page 8-36

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify the vehicle is not in the OnStar initiated Stolen Vehicle Slowdown mode. This can be accomplished by verifying the scan tool K9 Body Control Module Telematics Enhanced Service Immobilization parameter is No.

⇒ **If the scan tool K9 Body Control Module Telematics Enhanced Service Immobilization parameter is Yes**

   1.1. Perform the Remote Vehicle Speed Limiting Reset procedure with the scan tool.

   1.2. Press the blue OnStar button and inform the advisor that you need to be transferred to the stolen vehicle team to update the vehicle account.

⇓ **If the scan tool K9 Body Control Module Telematics Enhanced Service Immobilization parameter is No**

2. All OK.

Repair Instructions

Immobilizer System Component Programming

Object-ID=4430507 Owner=Day, Colin LMD=27-Oct-2022 LMB=Day, Colin

This procedure will learn the immobilizer function. If the battery voltage is low, charge the battery before proceeding with the learn. If the body control module (BCM) or engine control module (ECM) have been replaced, they must be programmed before performing this learn procedure.

Depending on the immobilizer function being learned or the component replaced, different learn functions are required to be performed. These learn functions are as follows:

Immobilizer System Component Programming

When the function should be used:	Function name on SPS tool:	Function description:	Notes:
The BCM has been replaced and the existing vehicle keys are being reused or a diagnostic has instructed to perform the learn	Body Control Module IMMO Function with Existing Transponder or Remote Key	The BCM will relearn the immobilizer passwords and data while reusing the existing vehicle keys	—
The BCM has been replaced and new vehicle keys are being reused	Body Control Module IMMO Function with New Transponder or Remote Key	The BCM will relearn the immobilizer passwords and data while using new vehicle keys	—
The ECM has been replaced or a diagnostic has instructed to perform the learn	Engine Control Module IMMO Learn	The ECM will relearn the immobilizer passwords and data	—
Both the ECM and BCM have been replaced (this selection will REQUIRE new vehicle keys be used)	Engine Control Module and Body Control Module IMMO Learn	The ECM and BCM will learn new immobilizer passwords and data	Because both the ECM and BCM have been replaced and are learning new immobilizer passwords and data, all vehicle keys must also be replaced
A new vehicle key is being added (does not affect other vehicle keys)	Program Transponder or Remote Key (Add)	A new vehicle key will learn the immobilizer passwords and data	This function may not be available in all sales regions
All vehicle keys are desired to be invalidated and certain keys relearned or a diagnostic has instructed to perform the learn	Program Transponder or Remote Key (Delete)	All existing vehicle keys will be invalidated and any desired keys are relearned	This procedure may be used if a customer has had their keys lost or stolen and wishes to invalidate the keys, making them unable to start the vehicle

Note: To prevent errors or immobilizer learn failure, the vehicle must be in Park (for automatic transmission) or Neutral with park brake applied (for manual transmission).

1. Connect a scan tool to the vehicle and access SPS.
2. Turn ON the ignition, with the engine OFF.
3. Ensure that all power consuming devices are turned OFF on the vehicle.
4. Select SPS application and follow the on-screen instructions.
5. Select Reprogram ECU.
6. Select IMMO Immobilizer Learn.
7. Select the appropriate programming function based on the component that was replaced or is being programmed. Refer to the table at the top of this document for assistance in choosing the correct programming function.

   Note:

   - At multiple times during the learn procedure, SPS will instruct you to turn the ignition to the run position. Make sure the vehicle is actually in the run mode before continuing on the SPS terminal. If the ignition is not in run mode, the learn procedure will fail. To verify the vehicle is in Run mode, verify the green LED is illuminated on the ignition mode switch.
   - For the transmitter pocket location refer to *Keyless Entry Transmitter Pocket Location on page 8-257*
8. Follow the on-screen instructions.
9. When the SPS procedure has completed, press and hold the ignition mode switch for 15 seconds.
10. With a scan tool, clear any DTCs.

Unable to Complete Programming

When attempting to program immobilizer components, various conditions may prevent the programming operation from completing. These conditions may be caused by normal system operation, a system malfunction, or an external influence. Common symptoms of a incomplete programming is receiving an error message during the attempt or having the SPS application become unresponsive.

- DTCs are set in the body control module (BCM)

  The immobilizer system is a function of the BCM software. If immobilizer DTCs are set in the BCM, such as DTC B2955, a fault has been identified in the immobilizer system. If this is not corrected before attempting to program components, the programming may not complete. Correct all immobilizer DTCs before attempting to program any immobilizer components.
- The key has been programmed to another vehicle or is not the correct type for the vehicle

  A key can only be programmed to a single vehicle. Once a key is programming to a vehicle, it is paired for the life of the key. The key can be learned to the same vehicle again and again, but it is not able to be programmed to a different vehicle.

Many vehicle are available with both a base keyless entry system and an optional passive entry system. These keys typically look identical but cannot be substituted for one another. To verify the key is correct, compare the part number that is etched on the key to the part number identified in the parts catalog. The key should be correct for the system installed in the vehicle.

- The theft deterrent module is not properly secured or the key is not properly positioned in the pocket/slot.

  A theft deterrent module that is not fully seated or is otherwise not properly secured may prevent a coupling between the transponder located in the key and the theft deterrent module. Being out of place by as little as 1 mm may prevent programming from completing. Make sure the theft deterrent module is properly installed and fully seated in it’s clip.

  The key shank must be fully extended so that the entire key shank fits into the programming slot.

  To determine if the theft deterrent module is properly secured, remove the battery from the key and place the key into the pocket/slot. Attempt to change the vehicle mode by pressing the vehicle ON/OFF switch. The vehicle should change modes. If the NO REMOTE DETECTED message is displayed on the DIC, the theft deterrent module may not be properly secured.
- External interference is interrupting the programming operation

  External RF interference and EMI may interrupt the low frequency coupling between the key and theft deterrent module. This interference may come from many different locations. Devices plugged into the vehicle power outlets such as cell phone chargers, laptop computers, GPS devices, etc. may cause interference. Vehicle location may also cause interference. Locations near airports and military installations may causer interference. Remove all customer installed devices and, if necessary, move the vehicle if interference is suspected.

Description and Operation

Immobilizer Description and Operation

Object-ID=5668842 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

The immobilizer system functions are provided by the Steering Column Lock Module, the Body Control Module (BCM), and the Engine Control Module (ECM), as well as any control modules which store and report the environment identifier. The Body Control Module uses low frequency antennas in different locations on the vehicle to determine the location of the transmitter. Multiple transmitting antennas are used to ensure complete coverage of the vehicle interior and rear compartment. These antennas transmit to the keyless entry transmitter.

When the vehicle Stop/Start switch is pressed, the low frequency antennas emit a challenge to the keyless entry transmitter. The transmitter receives this challenge and emits it's response as an RF message. The BCM then compares this value to a value stored in memory. The BCM also monitors various control modules to determine if the stored environment identifiers match.

If the correct transponder is detected, the electric steering column is unlocked, and there is no start disable from OnStar the BCM will send the prerelease allowed message via serial data to the ECM. The vehicle will be allowed up to 3 seconds run time. If the theft check is incorrect, the environment identifier check fails, the incorrect transponder is detected, the electric steering column is locked, or there is a start disable from OnStar, the BCM will send a negative response and the ECM will not start the vehicle or will immediately shut off the vehicle if prerelease allowed the vehicle to start.

If RF communication is interrupted, a "No Remote Detected" message will be displayed on the DIC. In these cases, the transmitter can be placed in the transmitter pocket. The immobilizer coil antenna is located in the immediate vicinity of the transmitter pocket. Placing the transmitter in the pocket/slot will create a low powered coupling between the transmitter and immobilizer coil antenna, allowing communications to occur and enabling vehicle starting.

The components of the immobilizer system are as follows:

- BCM
- ECM
- Steering column lock control module
- Immobilizer coil antenna
- Low frequency antenna
- Ignition key/Keyless entry transmitter
- Security indicator
- Various control modules which store and report the environment identifier

Body Control Module (BCM)

The immobilizer system is an integral part of the BCM and is controlled internally within the BCM. The BCM can learn up to 8 keys (transponder values). The BCM uses low frequency antennas in three different locations on the vehicle to determine the location of the transmitter. Multiple antennas are used to ensure complete coverage of the vehicle interior and rear compartment. The BCM monitors the ignition mode switch. When the ignition mode is changed, the BCM will command, or “ping”, the low frequency antenna.

The BCM uses the following inputs:

- Environment identifier exchange with various modules
- Encrypted code from the vehicle key, received by the immobilizer coil antenna if the keyless entry transmitter signal isn’t detected as indicated by the “No Remote Detected” message
- Encrypted code from the vehicle key

The BCM uses the following outputs:

- Prerelease Allowed signal communication with ECM
- Challenge/Response with ECM

When a transponder value is received by the BCM, the BCM will compare this value to the learned key code stored in memory. The BCM then performs one of the following functions:

- If the encrypted code value matches the values stored in the BCM memory, the BCM will send the Prerelease Allowed signal to the ECM via serial data.
- If the encrypted code unique value does not match the value stored in the BCM, the BCM will send the start disable message to the ECM via serial data.
- If the BCM is unable to receive the vehicle key encrypted code value, the BCM will not send any messages to the ECM.

Engine Control Module (ECM)

The ECM receives the BCM Prerelease Allowed signal and simultaneously the ECM sends a challenge to the BCM via the serial data circuit upon seeing the vehicle transition from OFF to any other power mode. Both the ECM and BCM perform a calculation on this challenge. If the calculated response from the BCM equals the calculation performed by the ECM, the ECM will allow vehicle starting.

Low Frequency Antenna

When commanded, or “pinged”, the low frequency antenna broadcast a challenge to the keyless entry transmitter. Because of the low power of the antenna, this challenge is only broadcast in an approximate three meter range of the antenna. Multiple antenna are used to ensure complete coverage of the vehicle interior and rear compartment.

Steering Column Lock Control Module

On vehicles with electronic steering column lock that use a steering column lock control module the immobilizer system will prevent vehicle starting if there is a fault or no communication with the steering column lock control module.

Keyless Entry Transmitter

Each keyless entry transmitter contains a transponder with a unique encrypted value. The transponder's encrypted value is fixed and unable to be changed. The immobilizer system uses the keyless entry transmitter transponder value to determine if a valid keyless entry transmitter is being used to start the vehicle.

Security Indicator

The BCM will command the Instrument Cluster to illuminate the security indicator when the vehicle is ON to indicate a fault has occurred within the immobilizer system.

Remote Vehicle Speed Limiting Description and Operation

Object-ID=2363249 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Certain vehicles equipped with OnStar® now have an additional feature that allows for remote limiting of the vehicle's speed. This OnStar® feature is called Stolen Vehicle Slow-Down and is now part of the OnStar® Stolen Vehicle Assistance service. This feature, when used in conjunction with local law enforcement and strict guidelines at the OnStar® Call Center, will slow the vehicle by interacting with the engine control system.

When the engine control system receives a valid request from the OnStar® telematics communications interface module, it will enter into a reduced engine power/vehicle speed limiting mode, which will decelerate the vehicle. Once the request is active the engine control module begins reducing engine torque to match requested vehicle speed and a REDUCED ENGINE POWER indication is displayed. No DTCs will be set during this process.

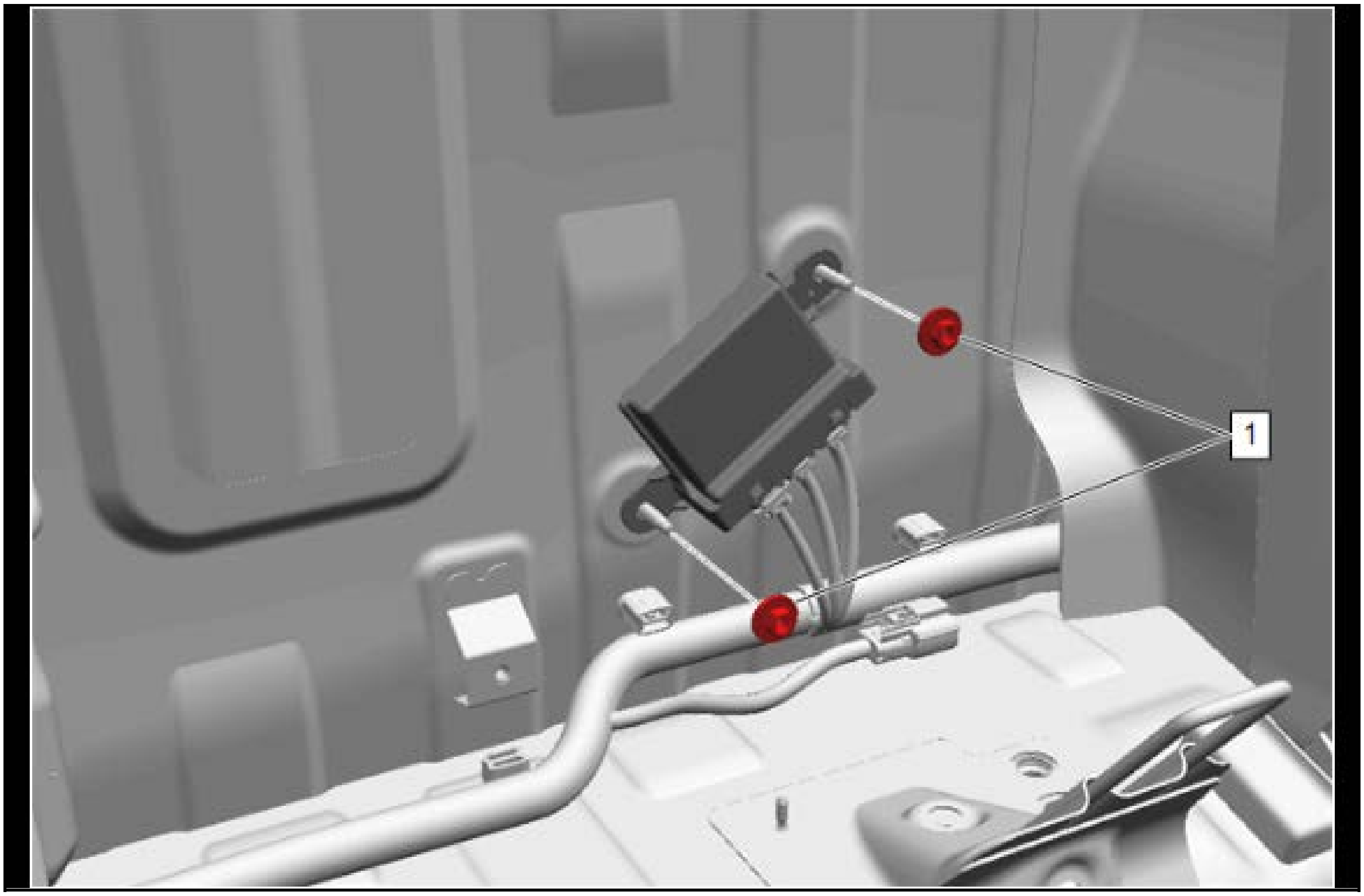
Safety and Security

Parking Assistance Systems

Specifications

Fastener Specifications

Object-ID=5642102 Owner=Hendrickson, Phil LMD=19-Aug-2020 LMB=McMillan, Tim



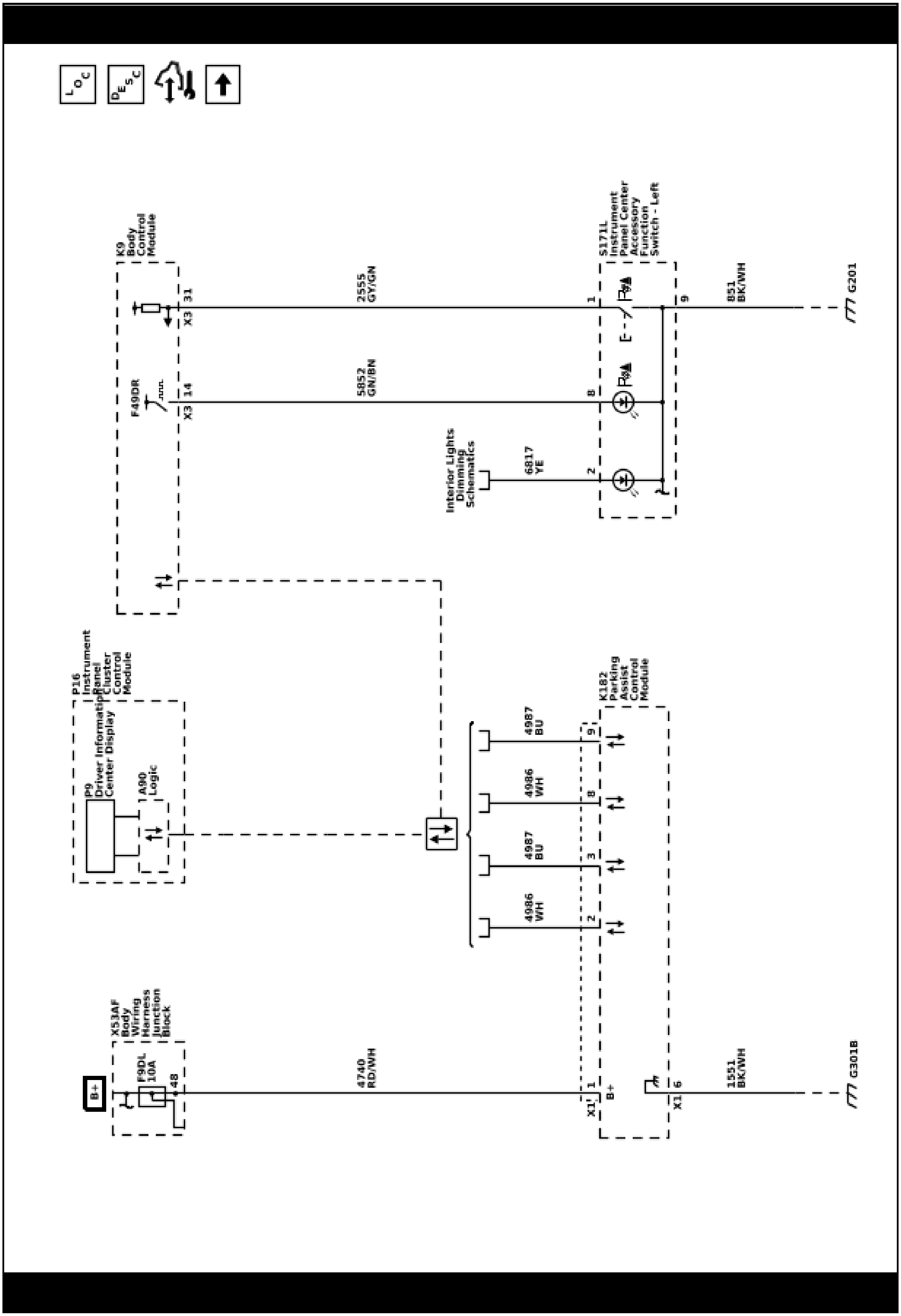
5642112

Parking Assist Control Module

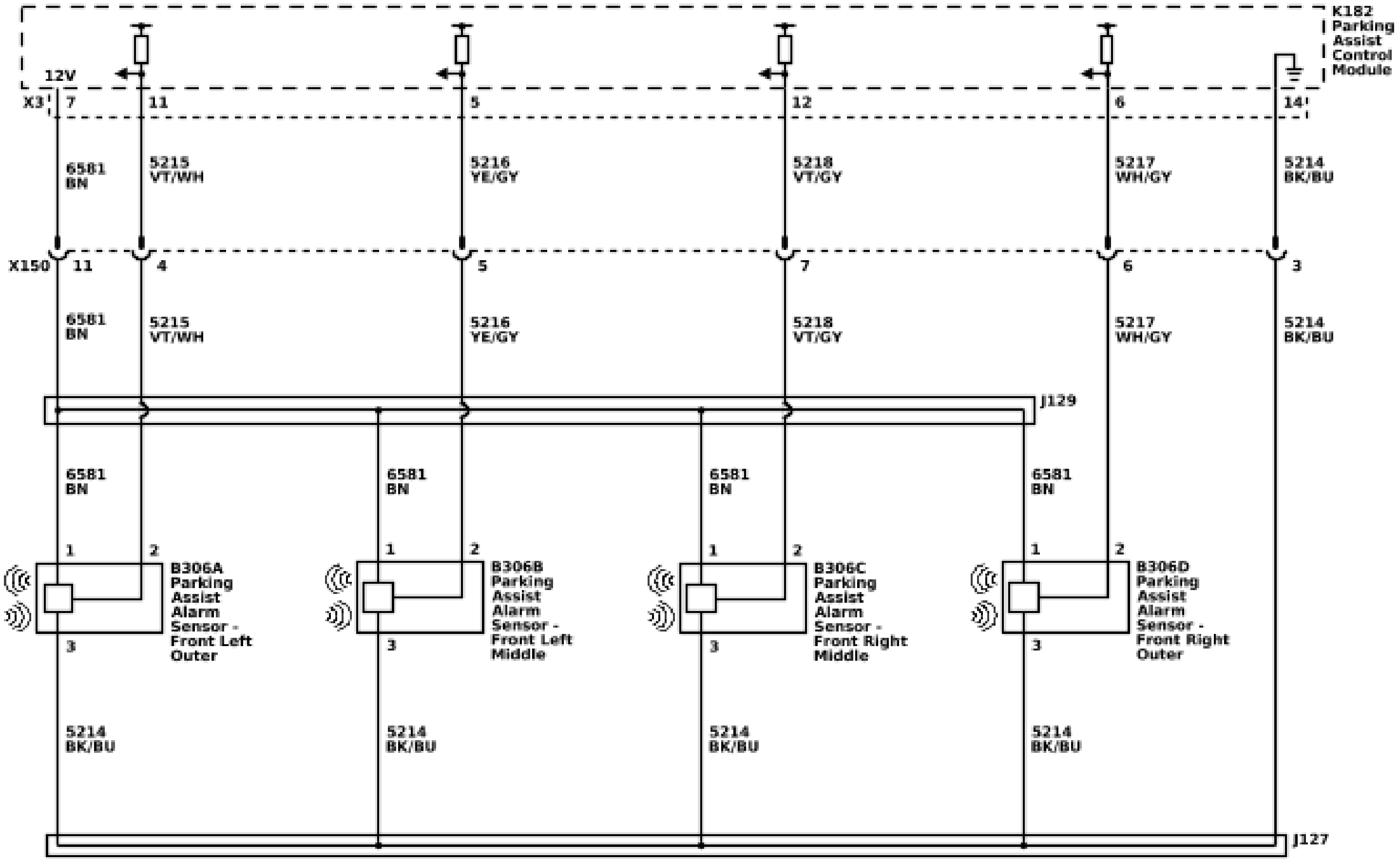
Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Parking Assist Control Module Nut [2x]	—	—	4.5 N•m(40 lb in)	*Parking Assist Control Module Replacement (Regular Cab) on page 8-63* or *Parking Assist Control Module Replacement (Crew Cab, Double Cab) on page 8-66*

Schematic and Routing Diagrams

Parking Assistance Systems Schematics Object-ID=6152410 (Park Assist - Power, Ground, Serial Data, and Control (UD5/UD7))

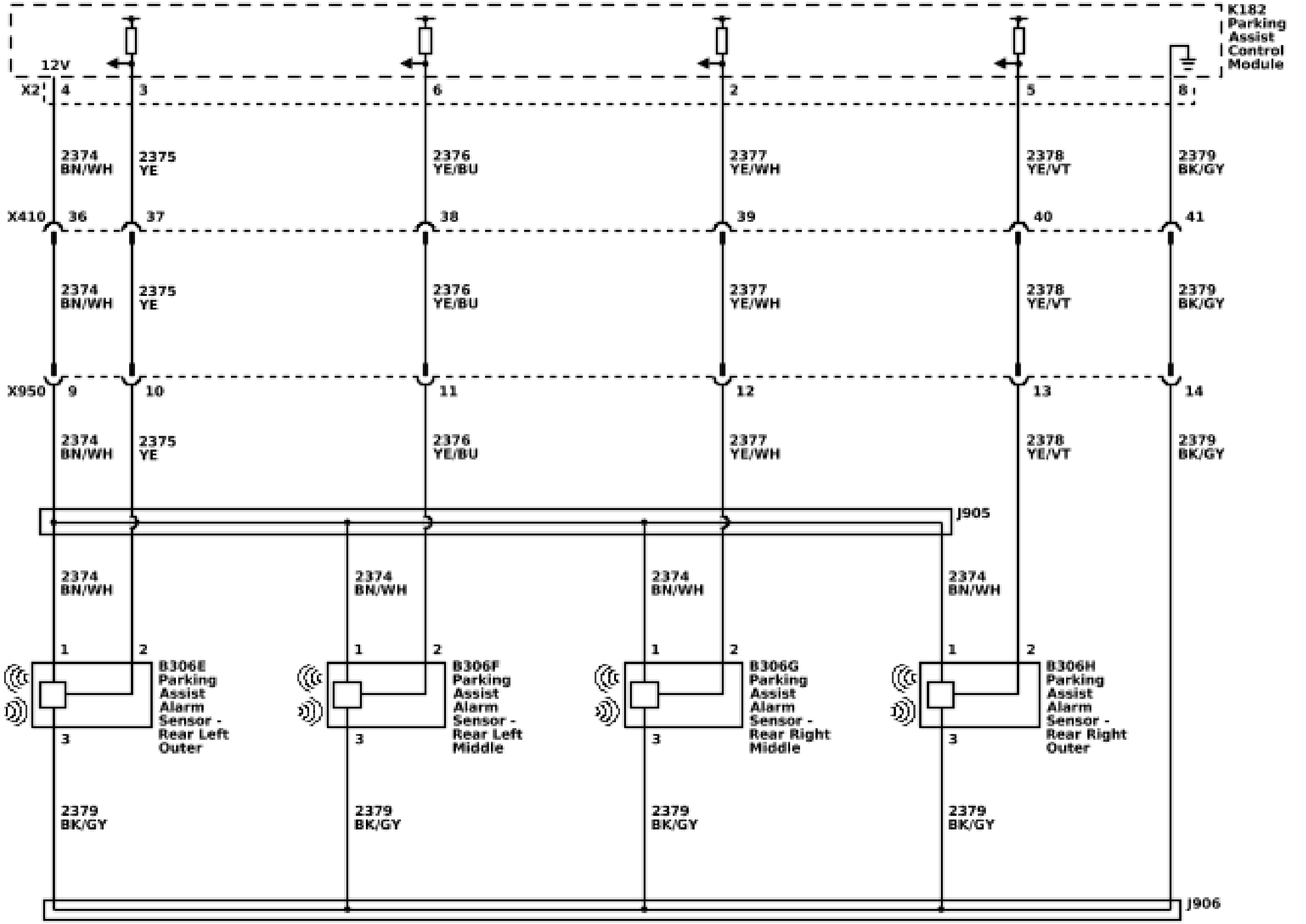

6150641
K9 Body Control Module
X3 31
X3 14
F49DR
2555 GY/GN
5852 GN/BN
Interior Lights Dimming Schematics
6817 YE
S171L Instrument Panel Center Accessory Function Switch - Left
1
8
2
9
851 BK/WH
G201
P16 Instrument Panel Cluster Control Module
P9 Driver Information Center Display
A90 Logic
K182 Parking Assist Control Module
4987 BU
4986 WH
4987 BU
4986 WH
9
8
3
2
X53AF Body Wiring Harness Junction Block
B+
F9DL 10A
48
4740 RD/WH
X1 1
B+
X1 6
1551 BK/WH
G301B

Parking Assistance Systems Schematics Object-ID=6152410 (Park Assist - Front Sensors (UD5))


K182 Parking Assist Control Module
12V
X3
7
11
5
12
6
14
6581 BN
5215 VT/WH
5216 YE/GY
5218 VT/GY
5217 WH/GY
5214 BK/BU
X150
11
4
5
7
6
3
6581 BN
5215 VT/WH
5216 YE/GY
5218 VT/GY
5217 WH/GY
5214 BK/BU
J129
6581 BN
6581 BN
6581 BN
6581 BN
1
2
B306A Parking Assist Alarm Sensor - Front Left Outer
3
1
2
B306B Parking Assist Alarm Sensor - Front Left Middle
3
1
2
B306C Parking Assist Alarm Sensor - Front Right Middle
3
1
2
B306D Parking Assist Alarm Sensor - Front Right Outer
3
5214 BK/BU
5214 BK/BU
5214 BK/BU
5214 BK/BU
J127

6150642

Parking Assistance Systems Schematics Object-ID=6152410 (Park Assist - Rear Sensors (UD5/UD7))


K182 Parking Assist Control Module
12V
X2
4
3
6
2
5
8
2374 BN/WH
2375 YE
2376 YE/BU
2377 YE/WH
2378 YE/VT
2379 BK/GY
X410
36
37
38
39
40
41
X950
9
10
11
12
13
14
J905
J906
1
2
3
B306E Parking Assist Alarm Sensor - Rear Left Outer
B306F Parking Assist Alarm Sensor - Rear Left Middle
B306G Parking Assist Alarm Sensor - Rear Right Middle
B306H Parking Assist Alarm Sensor - Rear Right Outer

6150643

Diagnostic Information and Procedures

Object-ID=5266556 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Parking Assistance Systems Component Replacement Reference

Component	Repair Instruction
B306A Parking Assist Sensor - Front Left Outer	Parking Assist Alarm Sensor Replacement
B306B Parking Assist Sensor - Front Left Middle	Parking Assist Alarm Sensor Replacement
B306C Parking Assist Sensor - Front Right Middle	Parking Assist Alarm Sensor Replacement
B306D Parking Assist Sensor - Front Right Outer	Parking Assist Alarm Sensor Replacement
B306E Parking Assist Sensor - Rear Left Outer	*Rear Parking Assist Alarm Sensor Replacement on page 8-150* or *Rear Parking Assist Alarm Sensor Replacement on page 8-153*
B306F Parking Assist Sensor - Rear Left Middle	*Rear Parking Assist Alarm Sensor Replacement on page 8-150* or *Rear Parking Assist Alarm Sensor Replacement on page 8-153*
B306G Parking Assist Sensor - Rear Right Middle	*Rear Parking Assist Alarm Sensor Replacement on page 8-150* or *Rear Parking Assist Alarm Sensor Replacement on page 8-153*
B306H Parking Assist Sensor - Rear Right Outer	*Rear Parking Assist Alarm Sensor Replacement on page 8-150* or *Rear Parking Assist Alarm Sensor Replacement on page 8-153*
K182 Parking Assist Control Module	Control Module References
S171L Instrument Panel Center Accessory Function Switch - Left	Control Module References

DTC B0954, B0955, B0956, or B0957

Object-ID=5249438 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B0954 :	Parking Assist Front Sensor Left Corner Circuit
DTC B0955 :	Parking Assist Front Sensor Left Middle Circuit
DTC B0956 :	Parking Assist Front Sensor Right Middle Circuit
DTC B0957 :	Parking Assist Front Sensor Right Corner Circuit

Symptom Byte Information: Symptom Byte List

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Reference Voltage — Terminal 1 X3 @ K182 Parking Assist Control Module	B1405 02	B0954 04, B0955 04, B0956 04, B0957 04	B1405 01	—
Signal — Terminal 4 X3 @ K182 Parking Assist Control Module	B0955 02	B0955 04	B0955 01	B0955 08
Signal — Terminal 5 X3 @ K182 Parking Assist Control Module	B0957 02	B0957 04	B0957 01	B0957 08
Signal — Terminal 10 X3 @ K182 Parking Assist Control Module	B0954 02	B0954 04	B0954 01	B0954 08
Signal — Terminal 11 X3 @ K182 Parking Assist Control Module	B0956 02	B0956 04	B0956 01	B0956 08
Low Reference — Terminal 8 X3 @ K182 Parking Assist Control Module	—	B0954 01, B0955 01, B0956 01, B0957 01	—	—

Circuit/System Description

Circuit	Description
Reference Voltage	Regulated voltage supplied by the control module.
Signal	The control module input circuit has an internal resistance connected to 7.0-12.5 V.
Low Reference	Grounded through the control module.

Component	Description
K182 Parking Assist Control Module	The assembly has several functions: Parking Assist
B306 Parking Assist Sensor	The sensors can send and receive ultrasonic sounds. First a short sound is emitted. If there is an obstacle in front of the sensor, the obstacle will reflect the sound back to the sensor. The time difference between sending and receiving is the measure for the distance to the obstacle.

Conditions for Running the DTC

- Ignition = On
- Park Assist System = Active — Transmission = Reverse

Conditions for Setting the DTC

B0954 00, B0955 00, B0956 00, B0957 00

Parking Assist Sensors = Malfunction

B0954 01, B0955 01, B0956 01, B0957 01

Signal circuit = Short to Voltage

B0954 02, B0955 02, B0956 02, B0957 02

Signal circuit = Short to Ground

B0954 04, B0955 04, B0956 04, B0957 04

- Reference Voltage = Open
- Signal circuit = Open

B0954 08, B0955 08, B0956 08, B0957 08

Parking Assist Sensors = Performance - Signal Invalid

B0954 22, B0955 22, B0956 22, B0957 22

Parking Assist Sensors = Too Short Low-Time

B0954 39, B0955 39, B0956 39, B0957 39

Parking Assist Sensors = Internal Malfunction

B0954 3A, B0955 3A, B0956 3A, B0957 3A

Parking Assist Sensors = Incorrect Component Installed

B0954 3C, B0955 3C, B0956 3C, B0957 3C

Parking Assist Sensors = Internal Communication Malfunction

B0954 F0, B0955 F0, B0956 F0, B0957 F0

Parking Assist Sensors = Too Few Pulses

B0954 F1, B0955 F1, B0956 F1, B0957 F1

Parking Assist Sensors = Performance - Signal Invalid

Actions Taken When the DTC Sets

Parking Assist = Disabled

Conditions for Clearing the DTC

The conditions for setting the DTC no longer exist.

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Parking Assist Description and Operation (UD7) on page 8-214 or *Parking Assist Description and Operation (UD5) on page 8-215*

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the appropriate electrical connector:
   - DTC B0954 — B306A Parking Assist Sensor - Front Left Outer
   - DTC B0955 — B306B Parking Assist Sensor - Front Left Middle
   - DTC B0956 — B306C Parking Assist Sensor - Front Right Middle
   - DTC B0957 — B306D Parking Assist Sensor - Front Right Outer
3. Ignition/Vehicle » On
4. Verify a test lamp turns On between the test points: Low Reference circuit terminal 3 & B+

⇒ **If the test lamp does not turn On**

4.1. Disconnect the electrical connector: X3 @ K182 Parking Assist Control Module

4.2. Test for less than 2 Ω between the test points: Low Reference circuit terminal 3 @ Component harness & Low Reference circuit terminal 8 @ Control module harness

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇓ **If the test lamp turns On**

5. Ignition » On / Vehicle » In Service Mode
6. Test for 7.0 to 12.2 V between the test points: Reference Voltage Circuit terminal 1 & Ground

⇒ **If greater than 12.2 V**

6.1. Ignition/Vehicle » Off

6.2. Disconnect the electrical connector: X3 @ K182 Parking Assist Control Module

6.3. Ignition » On / Vehicle » In Service Mode

6.4. Test for less than 1 V between the test points: Reference Voltage Circuit terminal 1 @ Component harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇒ If less than 1 V » Replace the component: K182 Parking Assist Control Module

⇒ **If less than 7.0 V**

6.1. Ignition/Vehicle » Off

6.2. Disconnect the electrical connector: X3 @ K182 Parking Assist Control Module

6.3. Test for infinite resistance between the test points: Reference Voltage Circuit terminal 1 @ Component harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇓ If infinite resistance

6.4. Test for less than 2 Ω between the test points: Reference Voltage Circuit terminal 1 @ Component harness & 9 V Reference circuit terminal 1 @ Control module harness

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇓ **If between 7.0 and 12.2 V**

7. Test for 1.5 to 12.2 V between the test points: Signal circuit terminal 2 & Ground

⇒ **If greater than 12.2 V**

7.1. Ignition/Vehicle » Off

7.2. Disconnect the electrical connector: X3 @ K182 Parking Assist Control Module

7.3. Ignition » On / Vehicle » In Service Mode

7.4. Test for less than 1 V between the test points: Signal circuit terminal 2 @ Component harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇒ If less than 1 V » Replace the component: K182 Parking Assist Control Module

⇒ **If less than 1.5 V**

7.1. Ignition/Vehicle » Off

7.2. Disconnect the electrical connector: X2 & X3 @ K182 Parking Assist Control Module

7.3. Test for infinite resistance between the test points: Signal circuit terminal 2 @ Component harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇓ If infinite resistance

7.4. Test for less than 2 Ω between the test points: Signal circuit terminal 2 @ Component harness & The other end of the circuit @ Control module harness

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇓ **If between 1.5 and 12.0 V**

8. Replace the appropriate component: B306 Parking Assist Sensor

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- *Parking Assistance Systems Component Replacement Reference on page 8-41*
- For control module replacement, programming, and setup refer to: Control Module References

DTC B0958, B0959, B0960, or B0961

Object-ID=5249440 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B0958 : Parking Assist Rear Sensor Left Corner Circuit

DTC B0959 : Parking Assist Rear Sensor Left Middle Circuit

DTC B0960 : Parking Assist Rear Sensor Right Middle Circuit

DTC B0961 : Parking Assist Rear Sensor Right Corner Circuit

Symptom Byte Information: Symptom Byte List

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Reference Voltage — Terminal 4 X2 @ K182 Parking Assist Control Module	B1405 02	B0958 04, B0959 04, B0960 04, B0961 04	B1405 01	—
Signal — Terminal 2 X2 @ K182 Parking Assist Control Module	B0960 02	B0960 04	B0960 01	B0960 08, F1
Signal — Terminal 3 X2 @ K182 Parking Assist Control Module	B0958 02	B0958 04	B0958 01	B0958 08, F1
Signal — Terminal 5 X2 @ K182 Parking Assist Control Module	B0961 02	B0961 04	B0961 01	B0961 08, F1
Signal — Terminal 6 X2 @ K182 Parking Assist Control Module	B0959 02	B0959 04	B0959 01	B0959 08, F1
Low Reference — Terminal 8 X2 @ K182 Parking Assist Control Module	—	B0958 01, B0959 01, B0960 01, B0961 01	—	—

Circuit/System Description

Circuit	Description
Reference Voltage	Regulated voltage supplied by the control module.
Signal	The control module input circuit has an internal resistance connected to 7.0-12.5 V.
Low Reference	Grounded through the control module.

Component	Description
K182 Parking Assist Control Module	The assembly has several functions: Parking Assist
B306 Parking Assist Sensor	The sensors can send and receive ultrasonic sounds. First a short sound is emitted. If there is an obstacle in front of the sensor, the obstacle will reflect the sound back to the sensor. The time difference between sending and receiving is the measure for the distance to the obstacle.

Conditions for Running the DTC

- Ignition = On
- Park Assist System = Active — Transmission = Reverse

Conditions for Setting the DTC

B0958 00, B0959 00, B0960 00, B0961 00

Parking Assist Sensors = Malfunction

B0958 01, B0959 01, B0960 01, B0961 01

Signal circuit = Short to Voltage

B0958 02, B0959 02, B0960 02, B0961 02

Signal circuit = Short to Ground

B0958 04, B0959 04, B0960 04, B0961 04

- Reference Voltage = Open
- Signal circuit = Open

B0958 08, B0959 08, B0960 08, B0961 08

Parking Assist Sensors = Performance - Signal Invalid

B0958 22, B0959 22, B0960 22, B0961 22

Parking Assist Sensors = Too Short Low-Time

B0958 39, B0959 39, B0960 39, B0961 39

Parking Assist Sensors = Internal Malfunction

B0958 3A, B0959 3A, B0960 3A, B0961 3A

Parking Assist Sensors = Incorrect Component Installed

B0958 3C, B0959 3C, B0960 3C, B0961 3C

Parking Assist Sensors = Internal Communication Malfunction

B0958 F0, B0959 F0, B0960 F0, B0961 F0

Parking Assist Sensors = Too Few Pulses

B0958 F1, B0959 F1, B0960 F1, B0961 F1

Parking Assist Sensors = Performance - Signal Invalid

Actions Taken When the DTC Sets

Parking Assist = Disabled

Conditions for Clearing the DTC

The conditions for setting the DTC no longer exist.

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Parking Assist Description and Operation (UD7) on page 8-214 or *Parking Assist Description and Operation (UD5) on page 8-215*

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the appropriate electrical connector:
    - DTC B0958 — B306E Parking Assist Sensor - Rear Left Outer
    - DTC B0959 — B306F Parking Assist Sensor - Rear Left Middle
    - DTC B0960 — B306G Parking Assist Sensor - Rear Right Middle
    - DTC B0961 — B306H Parking Assist Sensor - Rear Right Outer
3. Ignition/Vehicle » On
4. Verify a test lamp turns On between the test points: Low Reference circuit terminal 3 & B+

⇒ **If the test lamp does not turn On**

4.1. Disconnect the electrical connector: X2 @ K182 Parking Assist Control Module

4.2. Test for less than 2 Ω between the test points: Low Reference circuit terminal 3 @ Component harness & Low Reference circuit terminal 8 @ Control module harness

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇓ **If the test lamp turns On**

5. Ignition » On / Vehicle » In Service Mode
6. Test for 7.0 to 12.2 V between the test points: Reference Voltage Circuit terminal 1 & Ground

⇒ **If greater than 12.2 V**

6.1. Ignition/Vehicle » Off

6.2. Disconnect the electrical connector: X2 @ K182 Parking Assist Control Module

6.3. Ignition » On / Vehicle » In Service Mode

6.4. Test for less than 1 V between the test points: Reference Voltage Circuit terminal 1 @ Component harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇒ If less than 1 V » Replace the component: K182 Parking Assist Control Module

⇒ **If less than 7.0 V**

6.1. Ignition/Vehicle » Off

6.2. Disconnect the electrical connector: X2 @ K182 Parking Assist Control Module

6.3. Test for infinite resistance between the test points: Reference Voltage Circuit terminal 1 @ Component harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇓ If infinite resistance

6.4. Test for less than 2 Ω between the test points: Reference Voltage Circuit terminal 1 @ Component harness & Reference Voltage Circuit terminal 4 @ Control module harness

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇓ **If between 7.0 and 12.2 V**

7. Test for 1.5 to 12.2 V between the test points: Signal circuit terminal 2 & Ground

⇒ **If greater than 12.2 V**

7.1. Ignition/Vehicle » Off

7.2. Disconnect the electrical connector: X2 @ K182 Parking Assist Control Module

7.3. Ignition » On / Vehicle » In Service Mode

7.4. Test for less than 1 V between the test points: Signal circuit terminal 2 @ Component harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇒ If less than 1 V » Replace the component: K182 Parking Assist Control Module

⇒ **If less than 1.5 V**

7.1. Ignition/Vehicle » Off

7.2. Disconnect the electrical connector: X2 @ K182 Parking Assist Control Module

7.3. Test for infinite resistance between the test points: Signal circuit terminal 2 @ Component harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇓ If infinite resistance

7.4. Test for less than 2 Ω between the test points: Signal circuit terminal 2 @ Component harness & The other end of the circuit @ Control module harness

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇓ **If between 1.5 and 12.0 V**

8. Replace the appropriate component: B306 Parking Assist Sensor

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- *Parking Assistance Systems Component Replacement Reference on page 8-41*
- For control module replacement, programming, and setup refer to: Control Module References

DTC B0967

Object-ID=5264946 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B0967 : Parking Assist On/Off Switch Circuit

Symptom Byte Information: Symptom Byte List

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal — Terminal 1 @ S171L Instrument Panel Center Accessory Function Switch - Left	B0967 02	1	1	—
Ground — Terminal 9 @ S171L Instrument Panel Center Accessory Function Switch - Left	—	1	—	—
1. Parking Assist System Malfunction				

Circuit/System Description

For an overview of the component/system, refer to: Parking Assist Description and Operation (UD7) on page 8-214 or Parking Assist Description and Operation (UD5) on page 8-215

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 8 V.
Ground	Chassis Ground

Component	Description
K182 Parking Assist Control Module	The assembly has several functions: Parking Assist
S171L Instrument Panel Center Accessory Function Switch - Left	The switch has a normally open contact.

Conditions for Running the DTC

- Ignition = On
- DTC B1325 = Not set

Conditions for Setting the DTC

- Signal circuit = Short to Ground
- Parking Assist Switch = Stuck Closed

The above condition(s) must occur for greater than 15 s.

Actions Taken When the DTC Sets

Parking Assist = Disabled

Conditions for Clearing the DTC

The conditions for setting the DTC no longer exist.

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition » On / Vehicle » In Service Mode
2. Verify the scan tool parameter: Parking Assist Switch = Inactive

⇒ **If not the specified state**

Refer to: Circuit/System Testing

⇓ **If the specified state**

3. Operate the component: Parking Assist Switch » Press and hold the switch

   Verify the scan tool parameter: Parking Assist Switch = Active

⇒ **If not the specified state**

Refer to: Circuit/System Testing

⇓ **If the specified state**

4. All OK.

Circuit/System Testing

Note : It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left
3. Verify a test lamp turns On between the test points: Ground circuit terminal 9 & B+

⇒ **If the test lamp does not turn On**

3.1. Test for less than 2 Ω between the test points: Ground circuit terminal 9 & Ground Connection

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Repair the open/high resistance in the ground connection.

⇓ **If the test lamp turns On**

4. Ignition » On / Vehicle » In Service Mode
5. Verify the scan tool parameter: Parking Assist Switch = Inactive

⇒ **If not the specified state**

5.1. Ignition/Vehicle » Off

5.2. Disconnect the electrical connector: K182 Parking Assist Control Module

5.3. Test for infinite resistance between the test points: Signal circuit terminal 1 @ Component harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇒ If infinite resistance » Replace the component: K182 Parking Assist Control Module

⇓ **If the specified state**

6. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground
7. Verify the scan tool parameter: Parking Assist Switch = Active

⇒ **If not the specified state**

7.1. Ignition/Vehicle » Off & Remove » Jumper wire(s)

7.2. Disconnect the electrical connector: K182 Parking Assist Control Module

7.3. Ignition » On / Vehicle » In Service Mode

7.4. Test for less than 1 V between the test points: Signal circuit terminal 1 @ Component harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇓ If less than 1 V

7.5. Ignition/Vehicle » Off

7.6. Test for less than 2 Ω between the test points: Signal circuit terminal 1 @ Component harness & Signal circuit terminal 8 @ Control module harness

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇓ **If the specified state**

8. Test or replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- *Parking Assistance Systems Component Replacement Reference on page 8-41*
- For control module replacement, programming, and setup refer to: Control Module References

DTC B0968

Object-ID=5265036 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B0968 : Parking Assist On/Off Switch Indicator Circuit

Symptom Byte Information: Symptom Byte List

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control — Terminal 7 @ S171L Instrument Panel Center Accessory Function Switch - Left	1, 2	1, 2	1, 2	—
Control — Terminal 8 @ S171L Instrument Panel Center Accessory Function Switch - Left	1	1	B0968 01	—
1. Parking Assist System Malfunction 2. Indicator Dimming — Malfunction				

Circuit/System Description

For an overview of the component/system, refer to: *Parking Assist Description and Operation (UD7) on page 8-214* or *Parking Assist Description and Operation (UD5) on page 8-215*

Circuit	Description
Control — Terminal 7 @ S171L Instrument Panel Center Accessory Function Switch - Left	The output is PWM controlled.
Control — Terminal 8 @ S171L Instrument Panel Center Accessory Function Switch - Left	The output circuit is switched to ground to activate the component.

Component	Description
K182 Parking Assist Control Module	The assembly has several functions: Parking Assist
S171L Instrument Panel Center Accessory Function Switch - Left	The switch has a normally open contact.

Conditions for Running the DTC

- Ignition On
- DTC B1325 = Not set

Conditions for Setting the DTC

Control Circuit = Short to Voltage

Actions Taken When the DTC Sets

Parking Assist = Disabled

Conditions for Clearing the DTC

The conditions for setting the DTC no longer exist.

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition » On / Vehicle » In Service Mode
2. Perform the scan tool control function: Parking Assist Switch LED » Active & Inactive

   Verify the component activates: Parking Assist Switch LED = On and Off

⇒ **If the component does not turn On and Off**

   Refer to: Circuit/System Testing

⇓ **If the component turns On and Off**

3. All OK.

Circuit/System Testing

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left
3. Test for greater than 3 V between the test points: Control circuit terminal 7 Ground

⇒ **If less than 3 V**

   Refer to: Interior Backlighting Malfunction

⇓ **If greater than 3 V**

4. Connect a test lamp between the test points: Control circuit terminal 8 & B+
5. Perform the scan tool control function: Parking Assist Switch LED » Active & Inactive

   Verify the test lamp turns On and Off.

⇒ **If the test lamp is always Off**

   5.1. Ignition/Vehicle » Off & Remove » Test lamp

   5.2. Disconnect the electrical connector: K182 Parking Assist Control Module

   5.3. Ignition/Vehicle » On

   5.4. Test for less than 1 V between the test points: Control circuit terminal 8 @ Component harness & Ground

   ⇒ If 1 V or greater » Repair the short to voltage on the circuit.

   ⇓ If less than 1 V

   5.5. Test for less than 2 Ω between the test points: Control circuit terminal 8 @ Component harness & Control circuit terminal 3 @ Control module harness

   ⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

   ⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇒ **If the test lamp is always On**

   5.1. Ignition/Vehicle » Off & Remove » Jumper wire(s)

   5.2. Disconnect the electrical connector: K182 Parking Assist Control Module

   5.3. Test for infinite resistance between the test points: Control circuit terminal 8 @ Component harness & Ground

   ⇒ If less than infinite resistance » Repair the short to ground on the circuit.

   ⇒ If infinite resistance » Replace the component: K182 Parking Assist Control Module

⇓ **If the test lamp turns On and Off**

6. Test or replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- *Parking Assistance Systems Component Replacement Reference on page 8-41*
- For control module replacement, programming, and setup refer to: Control Module References

DTC B1015

Object-ID=4518299 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B1015 : Vehicle Identification Number Information

Symptom Byte Information: Symptom Byte List

Circuit/System Description

For an overview of the component/system, refer to: *Parking Assist Description and Operation (UD7) on page 8-214* or *Parking Assist Description and Operation (UD5) on page 8-215*

Component	Description
K9 Body Control Module	Depending on the version, the control module can support different functions: VIN Learn
K182 Parking Assist Control Module	The assembly has several functions: • VIN Learn • Parking Assist

Conditions for Running the DTC

Ignition = On

Conditions for Setting the DTC

The VIN stored in the control module and the VIN received via serial data from another control module are different.

Actions Taken When the DTC Sets

Parking Assist = Disabled

Conditions for Clearing the DTC

The conditions for setting the DTC no longer exist.

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Parking Assist Description and Operation (UD7) on page 8-214 or *Parking Assist Description and Operation (UD5) on page 8-215*

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition » On / Vehicle » In Service Mode
2. Verify DTC B1015 is not set.

⇒ **If the DTC is set**

2.1. Program the control module: K182 Parking Assist Control Module

2.2. Ignition » On / Vehicle » In Service Mode

2.3. Operate the vehicle within the Conditions for Running the DTC.

Verify DTC B1015 is not set.

⇒ If the DTC is set

Replace the appropriate component: K182 Parking Assist Control Module

⇓ If the DTC is not set

2.4. All OK.

⇓ **If the DTC is not set**

3. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

For control module replacement, programming, and setup refer to: Control Module References

DTC B1405 (UD5)

Object-ID=5249413 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B1405 : Control Module Voltage Reference Output 2 Circuit

Symptom Byte Information: Symptom Byte List

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Reference Voltage — Terminal 4 X2 @ K182 Parking Assist Control Module	B1405 02	B0954 04, B0955 04, B0956 04, B0957 04, B0958 04, B0959 04, B0960 04, B0961 04	B1405 01	—
Reference Voltage — Terminal 1 X3 @ K182 Parking Assist Control Module	B1405 02	B0954 04, B0955 04, B0956 04, B0957 04, B0958 04, B0959 04, B0960 04, B0961 04	B1405 01	—

Circuit/System Description

Circuit	Description
Reference Voltage	Regulated voltage supplied by the control module.
Signal	The control module input circuit has an internal resistance connected to 7.0-12.5 V.
Low Reference	Grounded through the control module.

Component	Description
K182 Parking Assist Control Module	The assembly has several functions: • Front Parking Assist • Rear Parking Assist
B306 Parking Assist Sensor	The sensors can send and receive ultrasonic sounds. First a short sound is emitted. If there is an obstacle in front of the sensor, the obstacle will reflect the sound back to the sensor. The time difference between sending and receiving is the measure for the distance to the obstacle.

Conditions for Running the DTC

Ignition = On

Conditions for Running the DTC

Ignition = On

Conditions for Setting the DTC

B1405 01

Reference Voltage = Short to Voltage

B1405 02

Reference Voltage = Short to Ground

B1405 03

Reference Voltage = Low

B1405 07

Reference Voltage = High

B1405 0B

Reference Voltage = High Current

Actions Taken When the DTC Sets

Parking Assist = Disabled

Conditions for Clearing the DTC

The conditions for setting the DTC no longer exist.

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Parking Assist Description and Operation (UD7) on page 8-214 or *Parking Assist Description and Operation (UD5) on page 8-215*

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the electrical connector: X2 & X3 @ K182 Parking Assist Control Module
3. Test for infinite resistance between the test points: Reference Voltage Circuit terminal 4 X2 & Ground

⇒ **If less than infinite resistance**

3.1. Ignition/Vehicle » Off

3.2. Disconnect the electrical connector: B306 Parking Assist Sensor — All

3.3. Test for infinite resistance between the test points: Reference Voltage Circuit terminal 4 X2 @ Control module harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇒ If infinite resistance » Replace the component: B306 Parking Assist Sensor

⇓ **If infinite resistance**

4. Test for infinite resistance between the test points: Reference Voltage Circuit terminal 1 X3 & Ground

⇒ **If less than infinite resistance**

4.1. Ignition/Vehicle » Off

4.2. Disconnect the electrical connector: B306 Parking Assist Sensor — All

4.3. Test for infinite resistance between the test points: Reference Voltage Circuit terminal 1 X3 @ Control module harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇒ If infinite resistance » Replace the component: B306 Parking Assist Sensor

⇓ **If infinite resistance**

5. Ignition » On / Vehicle » In Service Mode
6. Test for less than 1 V between the test points: Reference Voltage Circuit terminal 4 X2 & Ground

⇒ **If greater than 1 V**

6.1. Ignition/Vehicle » Off

6.2. Disconnect the electrical connector: B306 Parking Assist Sensor — All

6.3. Test for less than 1 V between the test points: Reference Voltage Circuit terminal 4 X2 @ Control module harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇒ If less than 1 V » Replace the component: B306 Parking Assist Sensor

⇓ **If less than 1 V**

7. Test for less than 1 V between the test points: Reference Voltage Circuit terminal 1 X3 & Ground

⇒ **If greater than 1 V**

7.1. Ignition/Vehicle » Off

7.2. Disconnect the electrical connector: B306 Parking Assist Sensor — All

7.3. Test for less than 1 V between the test points: Reference Voltage Circuit terminal 1 X3 @ Control module harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇒ If less than 1 V » Replace the component: B306 Parking Assist Sensor

⇓ **If less than 1 V**

8. Ignition/Vehicle & All vehicle systems » Off
9. Connect all electrical connectors.
10. Ignition » On / Vehicle » In Service Mode
11. Verify DTC B1405 is not set.

⇒ **If the DTC is set**

11.1. Ignition/Vehicle » Off

11.2. Disconnect the electrical connector: B306 Parking Assist Sensor — All

11.3. Ignition » On / Vehicle » In Service Mode

11.4. Verify DTC B1405 is not set.

⇒ If the DTC is set

Replace the component: K182 Parking Assist Control Module

⇓ If the DTC is not set

11.5. Connect the electrical connector: B306 Parking Assist Sensor — One at a time

Verify DTC B1405 is not set.

⇒ If the DTC sets » Replace the component that has failed in the test.

⇓ If the DTC is not set

11.6. All OK.

⇓ **If the DTC is not set**

12. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- *Parking Assistance Systems Component Replacement Reference on page 8-41*
- For control module replacement, programming, and setup refer to: Control Module References

DTC B1405 (UD7)

Object-ID=5265430 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B1405 : Control Module Voltage Reference Output 2 Circuit

Symptom Byte Information: Symptom Byte List

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Reference Voltage — Terminal 4 X2 @ K182 Parking Assist Control Module	B1405 02	B0958 04, B0959 04, B0960 04, B0961 04	B1405 01	—

Circuit/System Description

For an overview of the component/system, refer to: *Parking Assist Description and Operation (UD7) on page 8-214* or *Parking Assist Description and Operation (UD5) on page 8-215*

Circuit	Description
Reference Voltage	Regulated voltage supplied by the control module.
Signal	The control module input circuit has an internal resistance connected to 7.0-12.5 V.
Low Reference	Grounded through the control module.

Component	Description
K182 Parking Assist Control Module	The assembly has several functions: Rear Parking Assist
B306 Parking Assist Sensor	The sensors can send and receive ultrasonic sounds. First a short sound is emitted. If there is an obstacle in front of the sensor, the obstacle will reflect the sound back to the sensor. The time difference between sending and receiving is the measure for the distance to the obstacle.

Conditions for Running the DTC

Ignition = On

Conditions for Setting the DTC

B1405 01

Reference Voltage = Short to Voltage

B1405 02

Reference Voltage = Short to Ground

B1405 03

Reference Voltage = Low

B1405 07

Reference Voltage = High

B1405 0B

Reference Voltage = High Current

Actions Taken When the DTC Sets

Parking Assist = Disabled

Conditions for Clearing the DTC

The conditions for setting the DTC no longer exist.

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the electrical connector: X2 @ K182 Parking Assist Control Module
3. Test for infinite resistance between the test points: Reference Voltage Circuit terminal 4 & Ground

⇒ **If less than infinite resistance**

3.1. Ignition/Vehicle » Off

3.2. Disconnect the electrical connector: B306 Parking Assist Sensor — All

3.3. Test for infinite resistance between the test points: Reference Voltage Circuit terminal 4 @ Control module harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇒ If infinite resistance » Replace the component: B306 Parking Assist Sensor

⇓ **If infinite resistance**

4. Ignition » On / Vehicle » In Service Mode
5. Test for less than 1 V between the test points: Reference Voltage Circuit terminal 4 & Ground

⇒ **If greater than 1 V**

5.1. Ignition/Vehicle » Off

5.2. Disconnect the electrical connector: B306 Parking Assist Sensor — All

5.3. Test for less than 1 V between the test points: Reference Voltage Circuit terminal 4 @ Control module harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇒ If less than 1 V » Replace the component: B306 Parking Assist Sensor

⇓ **If less than 1 V**

6. Ignition/Vehicle & All vehicle systems » Off
7. Connect all electrical connectors.
8. Ignition » On / Vehicle » In Service Mode
9. Verify DTC B1405 is not set.

⇒ **If the DTC is set**

9.1. Ignition/Vehicle » Off

9.2. Disconnect the electrical connector: B306 Parking Assist Sensor — All

9.3. Ignition » On / Vehicle » In Service Mode

9.4. Verify DTC B1405 is not set.

⇒ If the DTC is set

Replace the component: K182 Parking Assist Control Module

⇓ If the DTC is not set

9.5. Connect the electrical connector: B306 Parking Assist Sensor — One at a time

Verify DTC B1405 is not set.

⇒ If the DTC sets » Replace the component that has failed in the test.

⇓ If the DTC is not set

9.6. All OK.

⇓ **If the DTC is not set**

10. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- Parking Assistance Systems Component Replacement Reference on page 8-41
- For control module replacement, programming, and setup refer to: Control Module References

DTC P18CB

Object-ID=4723163 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC P18CB : Parking Assist System Performance

Circuit/System Description

The control module communicates with the engine control module via serial data.

Conditions for Running the DTC

Ignition = On

Conditions for Setting the DTC

K20 Engine Control Module = Invalid Data Received From Parking Assist Control Module

Actions Taken When the DTC Sets

DTCs listed in the DTC Descriptor category = Type B DTC

Conditions for Clearing the DTC

DTCs listed in the DTC Descriptor category = Type B DTC

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Parking Assist Description and Operation (UD7) on page 8-214 or *Parking Assist Description and Operation (UD5) on page 8-215*

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

DTC Type Reference

Powertrain Diagnostic Trouble Code (DTC) Type Definitio

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition » On / Vehicle » In Service Mode
2. Verify no other DTCs are set.

⇒ **If other DTCs are set**

Refer to: Diagnostic Trouble Code (DTC) List - Vehicle

⇓ **If no other DTCs are set**

3. Replace the component: K182 Parking Assist Control Module
4. Verify the DTC does not set.

⇒ **If the DTC sets**

Replace the component: K20 Engine Control Module

⇓ **If the DTC does not set**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

For control module replacement, programming, and setup refer to: Control Module References

Symptoms - Parking Assistance Systems

Object-ID=4603230 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Note : The following steps must be completed before using the symptom lists.

1. In order to verify that all of the following conditions are fulfilled before using the symptom lists perform the Diagnostic System Check: Diagnostic System Check - Vehicle
    - No DTCs Stored
    - The control modules can communicate via the serial data link.
2. Review the system description and operation in order to familiarize yourself with the system functions. Refer to: *Parking Assist Description and Operation (UD7) on page 8-214* or *Parking Assist Description and Operation (UD5) on page 8-215*

Visual/Physical Inspection

- Inspect for aftermarket devices which may affect the operation of the system.
- Inspect the easily accessible or visible system components, for obvious damage or conditions, which may cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to: Testing for Intermittent Conditions and Poor Connections

Symptom List

For more information see: *Parking Assist System Malfunction on page 8-60*

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal — Terminal 1 @ S171L Instrument Panel Center Accessory Function Switch - Left	B0967 02	1	1	—
Ground — Terminal 9 @ S171L Instrument Panel Center Accessory Function Switch - Left	—	1	—	—
Control — Terminal 7 @ S171L Instrument Panel Center Accessory Function Switch - Left	1, 2	1, 2	1, 2	—
Control — Terminal 8 @ S171L Instrument Panel Center Accessory Function Switch - Left	1	1	B0968 01	—
1. Parking Assist System Malfunction 2. Indicator Dimming — Malfunction				

Circuit/System Description

The parking assist system is designed to identify and notify the driver of an object in the vehicle's path at speeds of less than 8 km/h (5 MPH). The distance and location of the object is determined by a number of parking assist sensors located in the front and/or rear fascia. The parking assist system notifies the driver using an audible signal through the infotainment system. Some vehicles may also display a visual signal on the driver information center.

Diagnostic Aids

The scan tool Parking Assist Disabled History 1–8 data can be used to diagnose a malfunction within the parking assist system or an intermittent concern. The following is a brief description of potential causes which may aid in diagnosis. For each potential issue, perform an appropriate inspect of the component or system and refer to the specific service information subsection related to that system for further diagnosis:

- Manual Disable – The parking assist system has been disabled through the parking assist switch or vehicle personalization menu.
- Rear Wheel Steering Malfunction – A malfunction condition exists within the rear wheel steering system that is inhibiting operation of the parking assist system.
- Trailer or Other Attached Object – The parking assist control module is detecting an object that is attached to the vehicle. Common items such as a hitch receiver, trailer, or a bicycle rack may cause this concern. Additionally, damage to the rear of the vehicle or a misaligned sensor may cause this concern. If the vehicle is damaged in a manner that causes the sensor to detect the bumper itself, the parking assist control module will interpret this as an attached object and disable the system. Carefully inspect the bumper, bumper mounting surface, and sensor retainers before continuing with normal diagnosis. After the detected cause has been addressed the vehicle must be driven at speed greater than 40 km/h (25 MPH).
- Excessive Speed in Reverse – The vehicle is travelling too fast in reverse at speeds of greater than 8 km/h (5 MPH).
- Electronic Brake Control Module Malfunction – A malfunction condition exists within the brake system that is inhibiting operation of the parking assist system.
- Sensor Disturbance – An outside interference is causing sensor movement. Such interference may be caused a heavy pounding, like that of a nearby jackhammer, or large changes in pressure, such as a large truck air brakes.
- Rear Wheel Steering Angle Signal Invalid – A malfunction condition exists within the rear wheel steering system that is inhibiting operation of the parking assist system.

Parking Assist System Malfunction

Object-ID=5265088 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

- Invalid Data Received From Electronic Brake Control Module – Invalid information has been received the brake system, inhibiting operation of the parking assist system.
- Side Object Detection Signal Invalid – Invalid information has been received the side object detection system, inhibiting operation of the parking assist system.
- Disabled by Driver Personalization – The parking assist system has been disabled through the vehicle personalization menu.
- Invalid Data Received From Seat Memory Control Module – Invalid information has been received from the seat system, inhibiting operation of the parking assist system.
- Disabled by Active Safety Control Module – The active safety system has requested the parking assist system be disabled.
- Invalid Data Received From Instrument Cluster – – Invalid information has been received from the instrument cluster, inhibiting operation of the parking assist system.
- Vehicle Direction Not Plausible – A malfunction exists where the indicated vehicle direction, as determined by the brake system and/or active safety system, is not plausible.
- Not Plausible– If the sensor fails its own diagnostic initialization the parking assist control module will set this error. After the detected cause has been addressed the vehicle must be driven at speed greater than 40 km/h (25 MPH). The following is a list of reasons this cause may have set:
  - One or more of the sensors may be blocked by snow, mud, ice, or other debris. This might happen after going through a car wash in cold weather.
  - Silicone insulator surrounding sensor maybe missing, cut, or twisted.
  - Improperly installed sensor, sensor maybe be crooked due to a tight wire harness.
  - One or more of the sensors may be scratched or the paint maybe chipped.
  - Excessive paint thickness on a sensor may cause an excessive sensor ring time. When replacing or refinishing a sensor, do not apply an excessive amount of paint or clear coat.

Reference Information

Schematic Reference

Parking Assistance Systems Schematics on page 8-38

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Parking Assist Description and Operation (UD7) on page 8-214 or
Parking Assist Description and Operation (UD5) on page 8-215

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition ON.
2. Verify the parking assist system is enabled.

⇒ **If the parking assist system is manually disabled**

Enable the system. Refer to the vehicle owners manual for instructions on enabling the system.

⇓ **If the parking assist system is enabled**

3. Transmission in REVERSE.
4. Verify the scan tool Parking Assist System Status parameter is Enable.

⇒ **If the parameter is not Enabled**

Refer to Diagnostic Aids to determine the cause of the inhibit.

⇓ **If the parameter is Enabled**

5. Ignition » On / Vehicle » In Service Mode
6. Verify the scan tool parameter: Parking Assist Switch = Inactive

⇒ **If not the specified state**

Refer to: Circuit/System Testing

⇓ **If the specified state**

7. Operate the component: Parking Assist Switch » Press and hold the switch

   Verify the scan tool parameter: Parking Assist Switch = Active

⇒ **If not the specified state**

Refer to: Circuit/System Testing — Test 1

⇓ **If the specified state**

8. Perform the scan tool control function: Parking Assist Switch LED » Active & Inactive

   Verify the component activates: Parking Assist Switch LED = On and Off

⇒ **If the component does not turn On and Off**

Refer to: Circuit/System Testing — Test 2

⇓ **If the component turns On and Off**

9. All OK.

Circuit/System Testing

Test 1

Note : It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left
3. Verify a test lamp turns On between the test points: Ground circuit terminal 9 & B+

⇒ **If the test lamp does not turn On**

   3.1. Test for less than 2 Ω between the test points: Ground circuit terminal 9 & Ground Connection

   ⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

   ⇒ If less than 2 Ω » Repair the open/high resistance in the ground connection.

⇓ **If the test lamp turns On**

4. Ignition » On / Vehicle » In Service Mode
5. Verify the scan tool parameter: Parking Assist Switch = Inactive

⇒ **If not the specified state**

   5.1. Ignition/Vehicle » Off

   5.2. Disconnect the electrical connector: K182 Parking Assist Control Module

   5.3. Test for infinite resistance between the test points: Signal circuit terminal 1 @ Component harness & Ground

   ⇒ If less than infinite resistance » Repair the short to ground on the circuit.

   ⇒ If infinite resistance » Replace the component: K182 Parking Assist Control Module

⇓ **If the specified state**

6. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground
7. Verify the scan tool parameter: Parking Assist Switch = Active

⇒ **If not the specified state**

   7.1. Ignition/Vehicle » Off & Remove » Jumper wire(s)

   7.2. Disconnect the electrical connector: K182 Parking Assist Control Module

   7.3. Ignition » On / Vehicle » In Service Mode

   7.4. Test for less than 1 V between the test points: Signal circuit terminal 1 @ Component harness & Ground

   ⇒ If 1 V or greater » Repair the short to voltage on the circuit.

   ⇓ If less than 1 V

   7.5. Ignition/Vehicle » Off

   7.6. Test for less than 2 Ω between the test points: Signal circuit terminal 1 @ Component harness & Signal circuit terminal 8 @ Control module harness

   ⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

   ⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇓ **If the specified state**

8. Test or replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

Test 2

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left
3. Test for greater than 3 V between the test points: Control circuit terminal 7 Ground

⇒ **If less than 3 V**

   Refer to: Interior Backlighting Malfunction

⇓ **If greater than 3 V**

4. Connect a test lamp between the test points: Control circuit terminal 8 & B+
5. Perform the scan tool control function: Parking Assist Switch LED » Active & Inactive

   Verify the test lamp turns On and Off.

⇒ **If the test lamp is always Off**

   5.1. Ignition/Vehicle » Off & Remove » Test lamp

   5.2. Disconnect the electrical connector: K182 Parking Assist Control Module

   5.3. Ignition/Vehicle » On

   5.4. Test for less than 1 V between the test points: Control circuit terminal 8 @ Component harness & Ground

   ⇒ If 1 V or greater » Repair the short to voltage on the circuit.

   ⇓ If less than 1 V

   5.5. Test for less than 2 Ω between the test points: Control circuit terminal 8 @ Component harness & Control circuit terminal 3 @ Control module harness

   ⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

   ⇒ If less than 2 Ω » Replace the component: K182 Parking Assist Control Module

⇒ **If the test lamp is always On**

   5.1. Ignition/Vehicle » Off & Remove » Jumper wire(s)

   5.2. Disconnect the electrical connector: K182 Parking Assist Control Module

   5.3. Test for infinite resistance between the test points: Control circuit terminal 8 @ Component harness & Ground

   ⇒ If less than infinite resistance » Repair the short to ground on the circuit.

   ⇒ If infinite resistance » Replace the component: K182 Parking Assist Control Module

⇓ **If the test lamp turns On and Off**

6. Test or replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- *Parking Assistance Systems Component Replacement Reference on page 8-41*
- For control module replacement, programming, and setup refer to: Control Module References

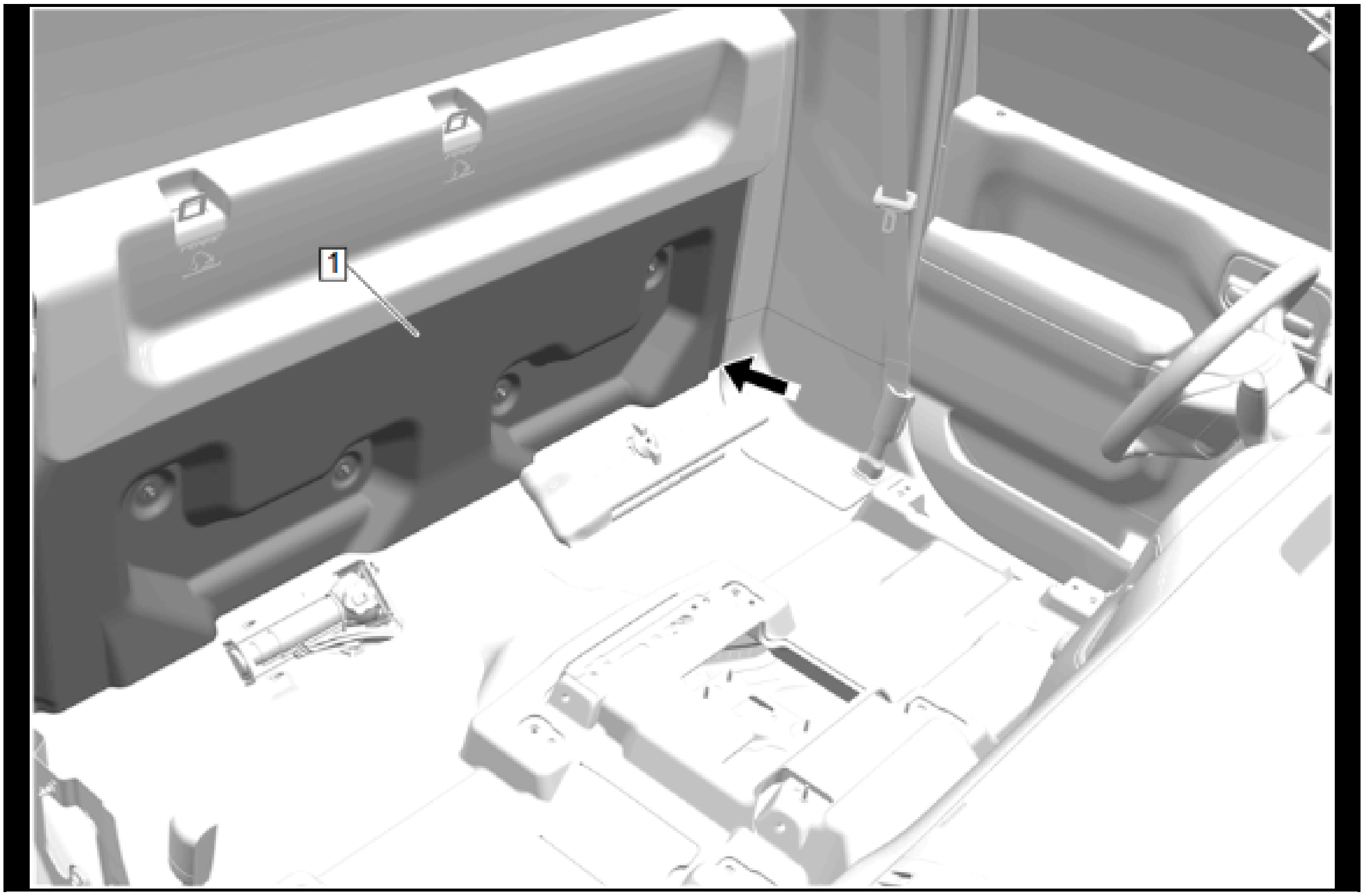
Repair Instructions

Parking Assist Control Module Replacement (Regular Cab)

Object-ID=5635052 Owner=Momber, Matthew LMD=04-Feb-2022 LMB=Raddatz, Klaus

Removal Procedure

1. Recline the driver's seat back forward and slide the seat forward.

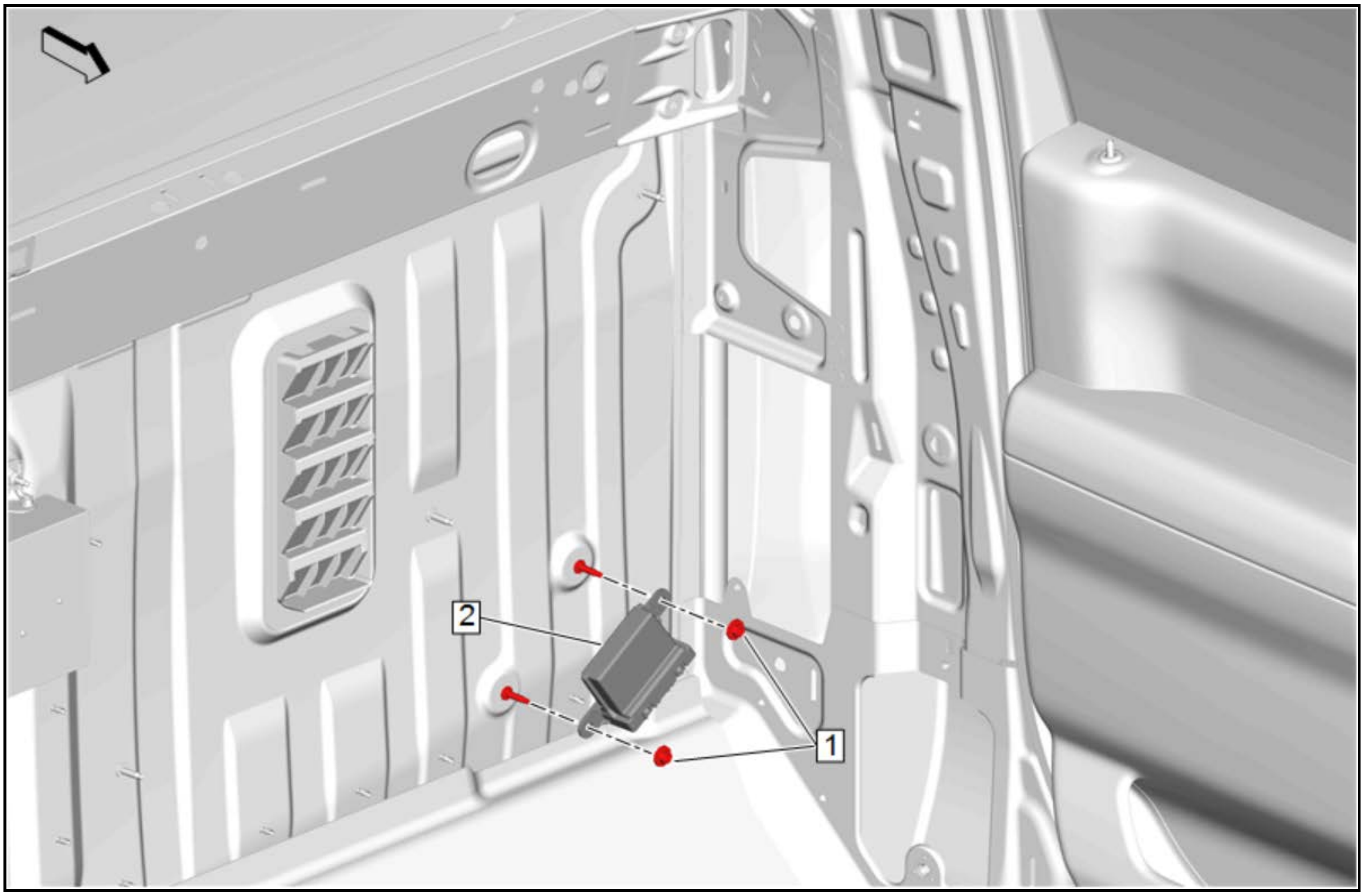


5786909

Note:

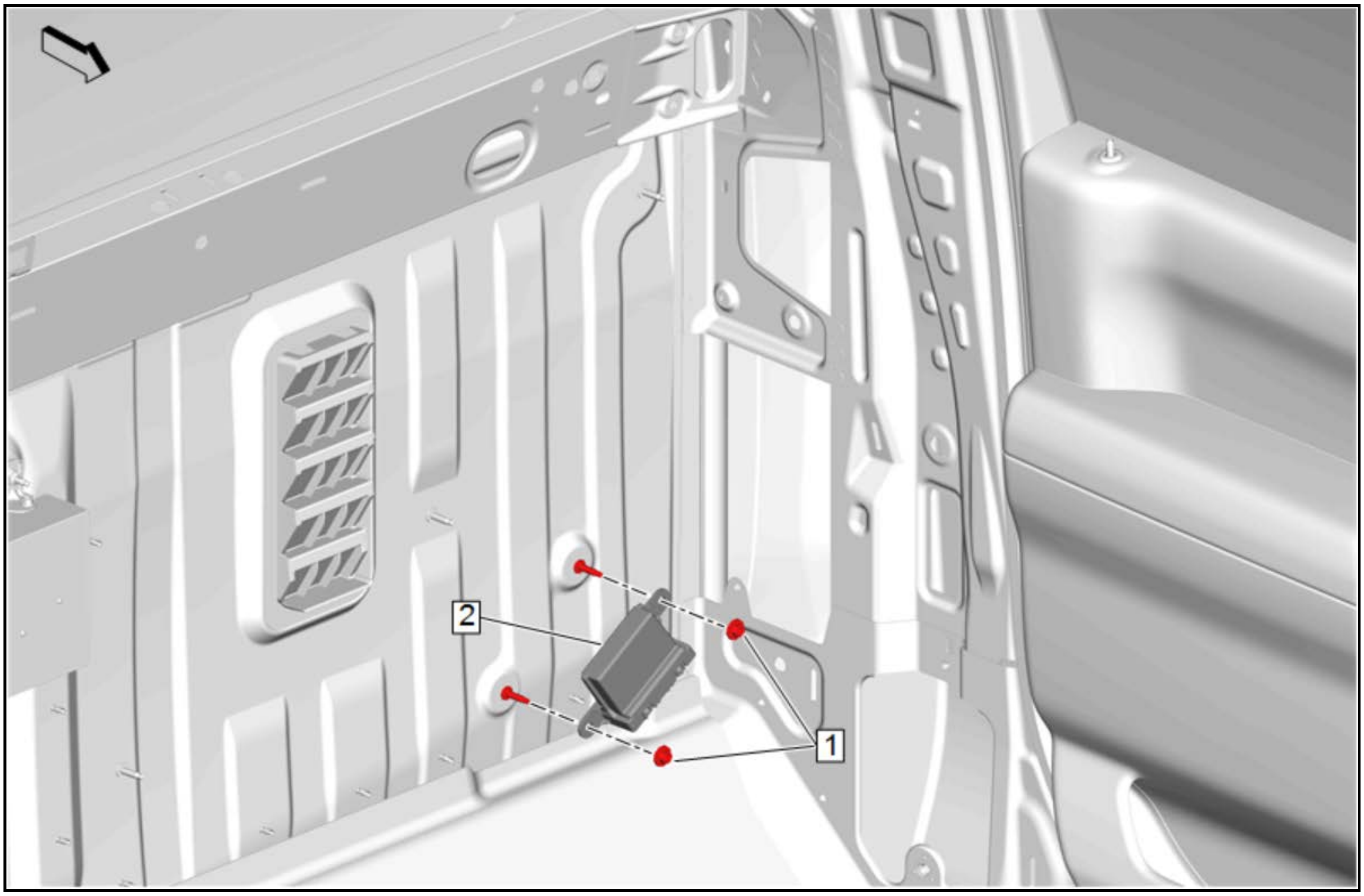
- Some components not shown for graphic clarity.
- It is only necessary to pull up on lower drivers side corner of the body rear panel insulator to access the parking assist control module.

3. Body Rear Panel Insulator (1) » Reposition



4. Disconnect the electrical connectors.
5. Parking Assist Control Module Nut (1) » Remove [2x]
6. Parking Assist Control Module (2) » Remove

Installation Procedure

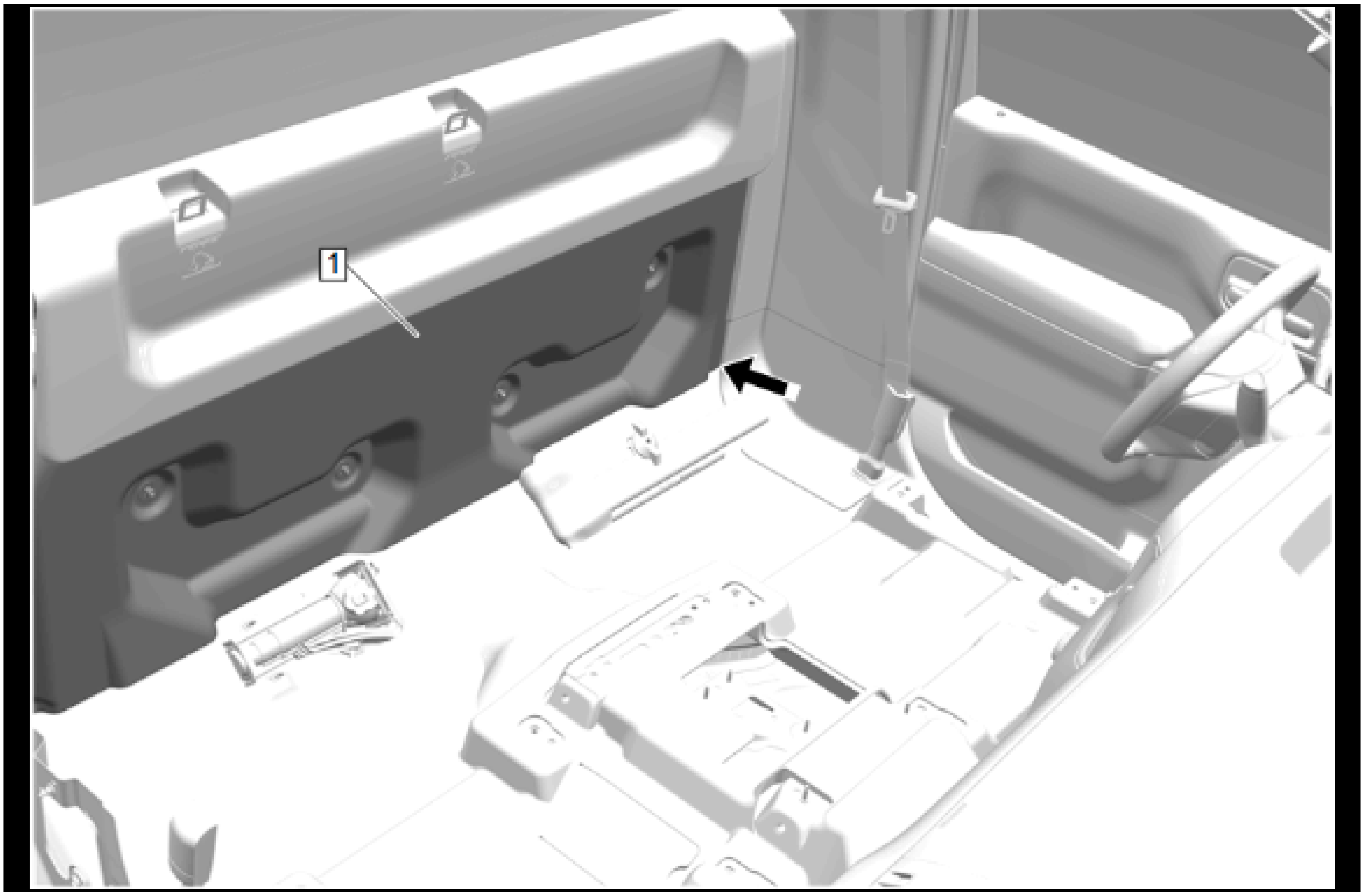


5161801

1. Parking Assist Control Module (2) » Install

Caution: Refer to Fastener Caution.

2. Parking Assist Control Module Nut (1) » Install and tighten [2x] — *Fastener Specifications on page 8-37*
3. Connect the electrical connectors.



5786909

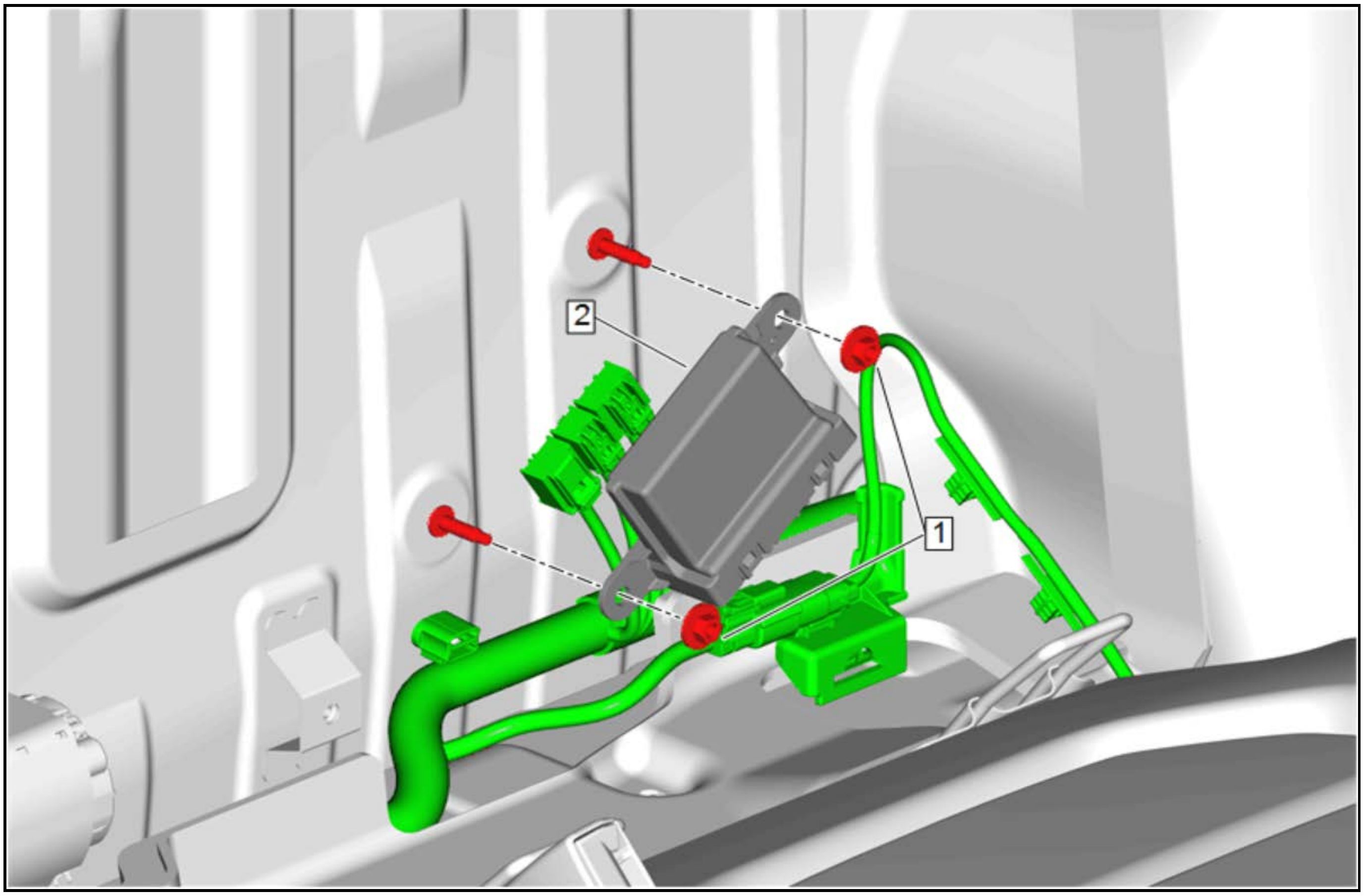
4. Body Rear Panel Insulator (1) » Install
5. Return the seat to its original position.
6. Perform the necessary programming and setup procedure: Control Module References

Parking Assist Control Module Replacement (Crew Cab, Double Cab)

Object-ID=5635046 Owner=Momber, Matthew LMD=29-Mar-2021 LMB=Schaller, Dawn

Removal Procedure

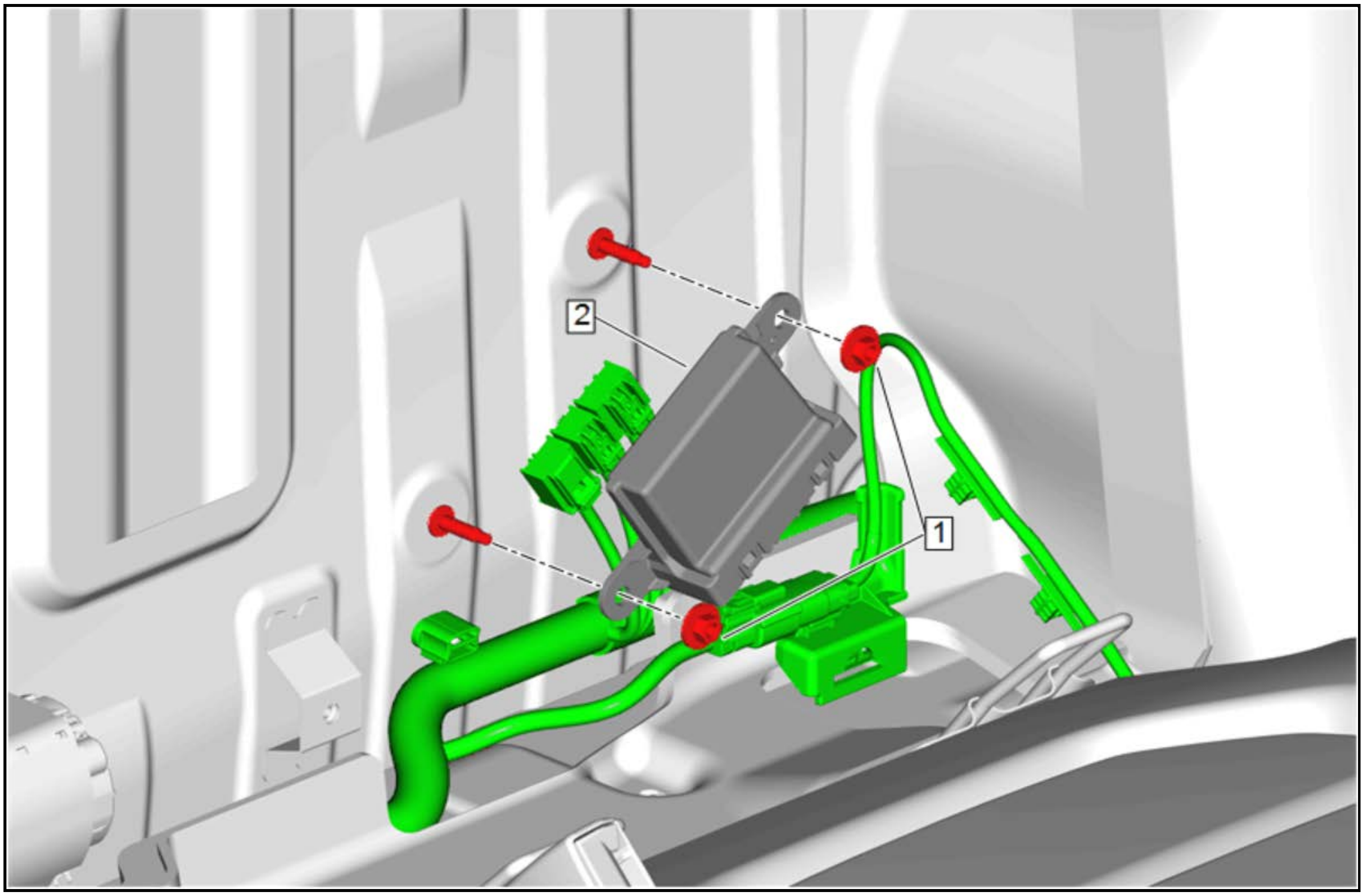
1. Rear Seat Back Cushion



5034100

2. Disconnect the electrical connectors.
3. Parking Assist Control Module Nut (1) » Remove [2x]
4. Parking Assist Control Module (2) » Remove

Installation Procedure



5034100

1. Parking Assist Control Module (2) » Install

Caution: Refer to Fastener Caution.

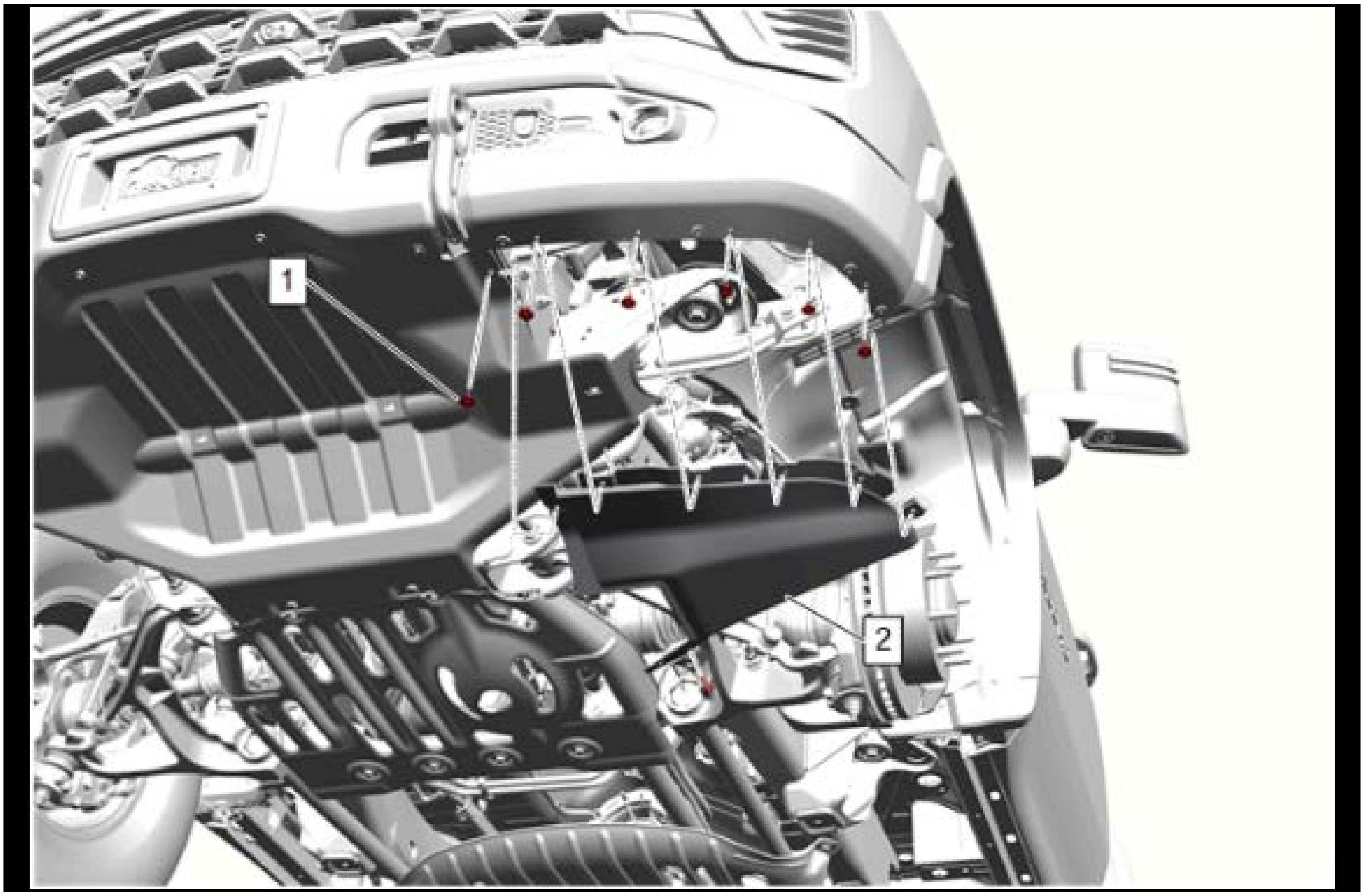
2. Parking Assist Control Module Nut (1) » Install and tighten [2x] — *Fastener Specifications on page 8-37*
3. Connect the electrical connectors.
4. Rear Seat Back Cushion » Install
5. Perform the necessary programming and setup procedure: Control Module References

Front Parking Assist Alarm Outer Sensor Replacement

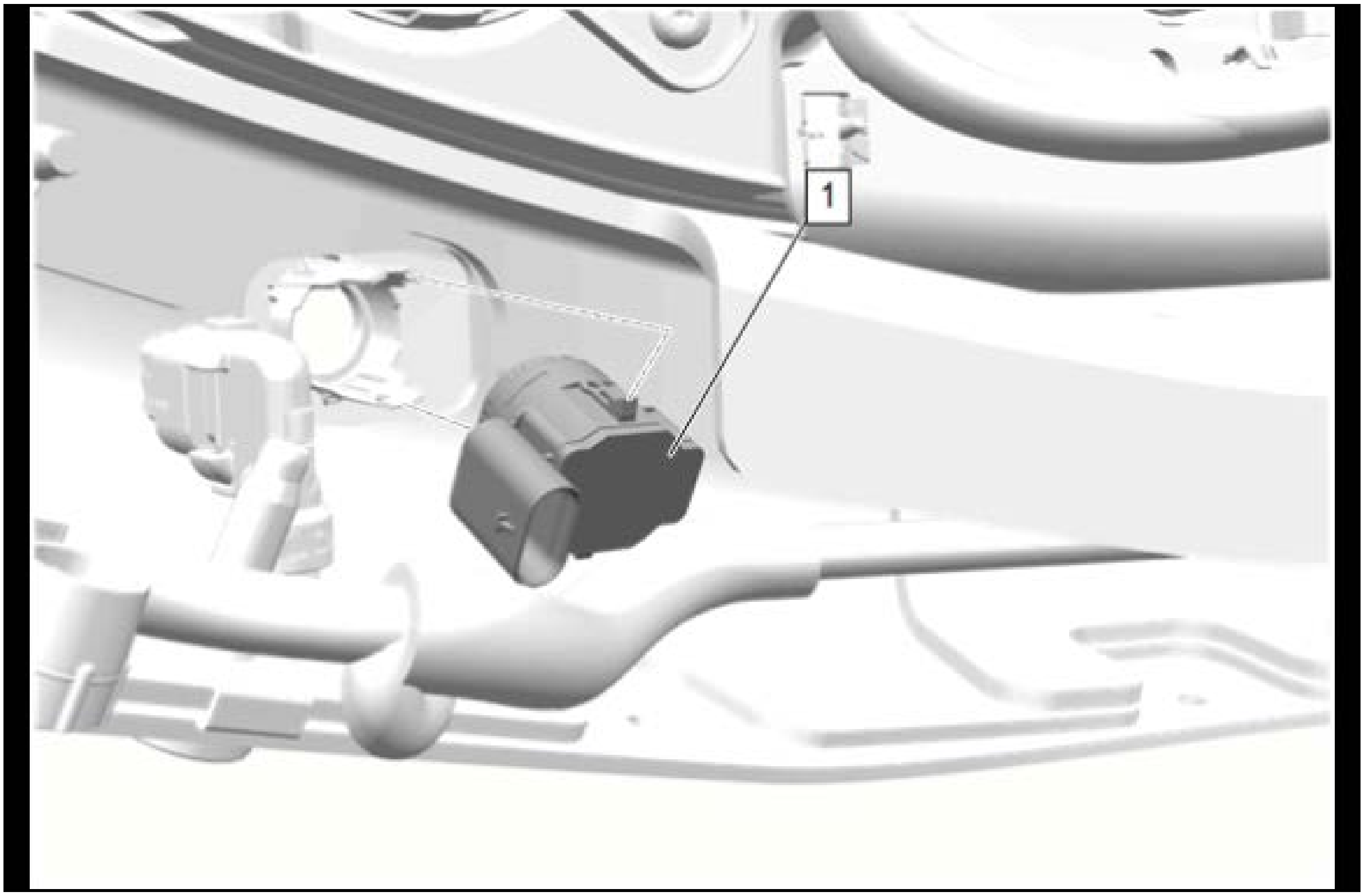
Object-ID=6288385 Owner=Hendrickson, Phil LMD=07-Mar-2023 LMB=Hendrickson, Phil

Removal Procedure

1. Raise and support the vehicle.



2. Front Bumper Fascia Bolt (1) » Remove [7x]
3. Front Bumper Lower Fascia (2) » Remove

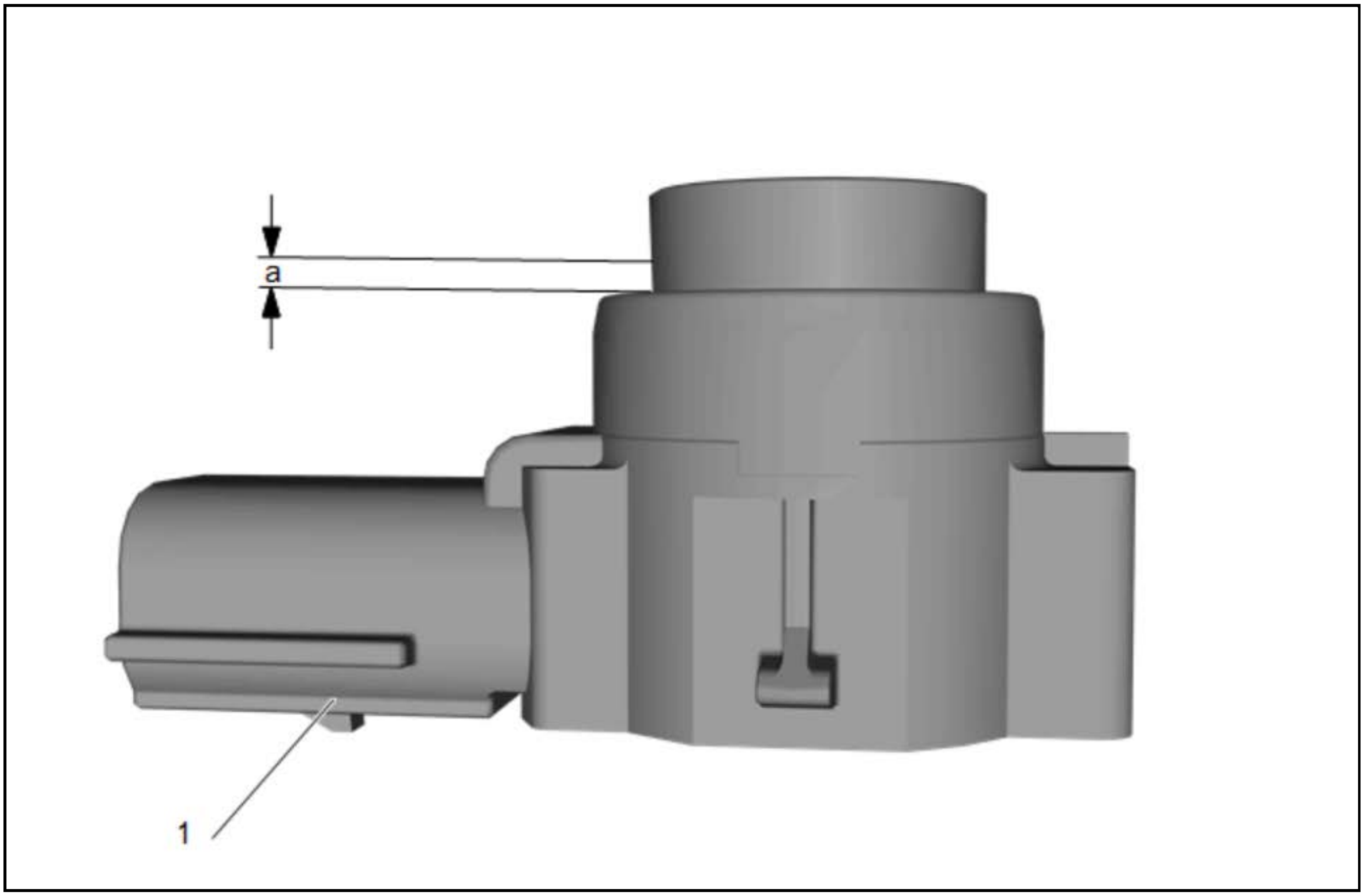


6288306

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

4. Lift the locking tabs on the housing and remove the front parking assist alarm outer sensor (1).
5. Disconnect the electrical connector.

Painting Procedure

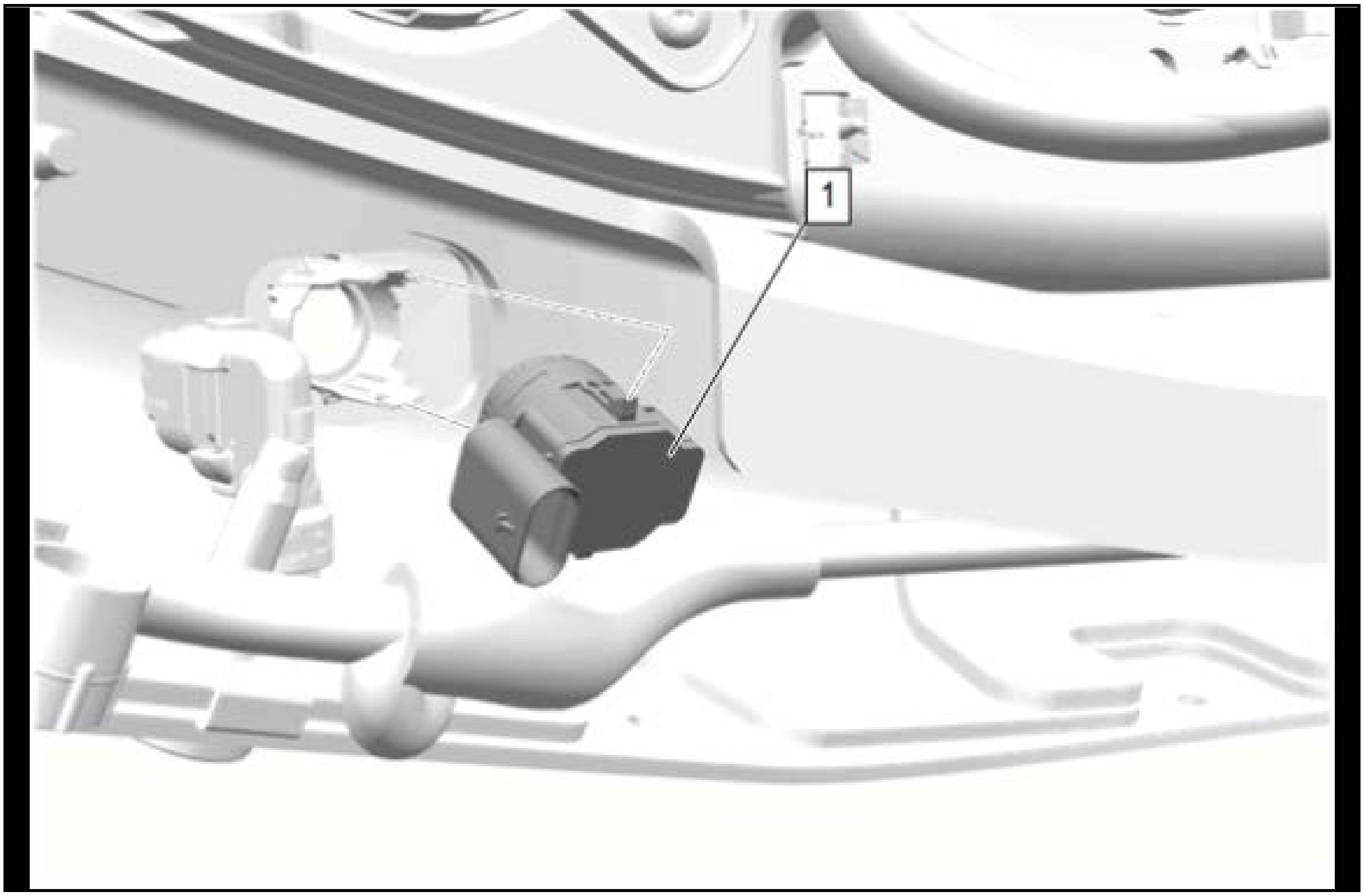


5001999

Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

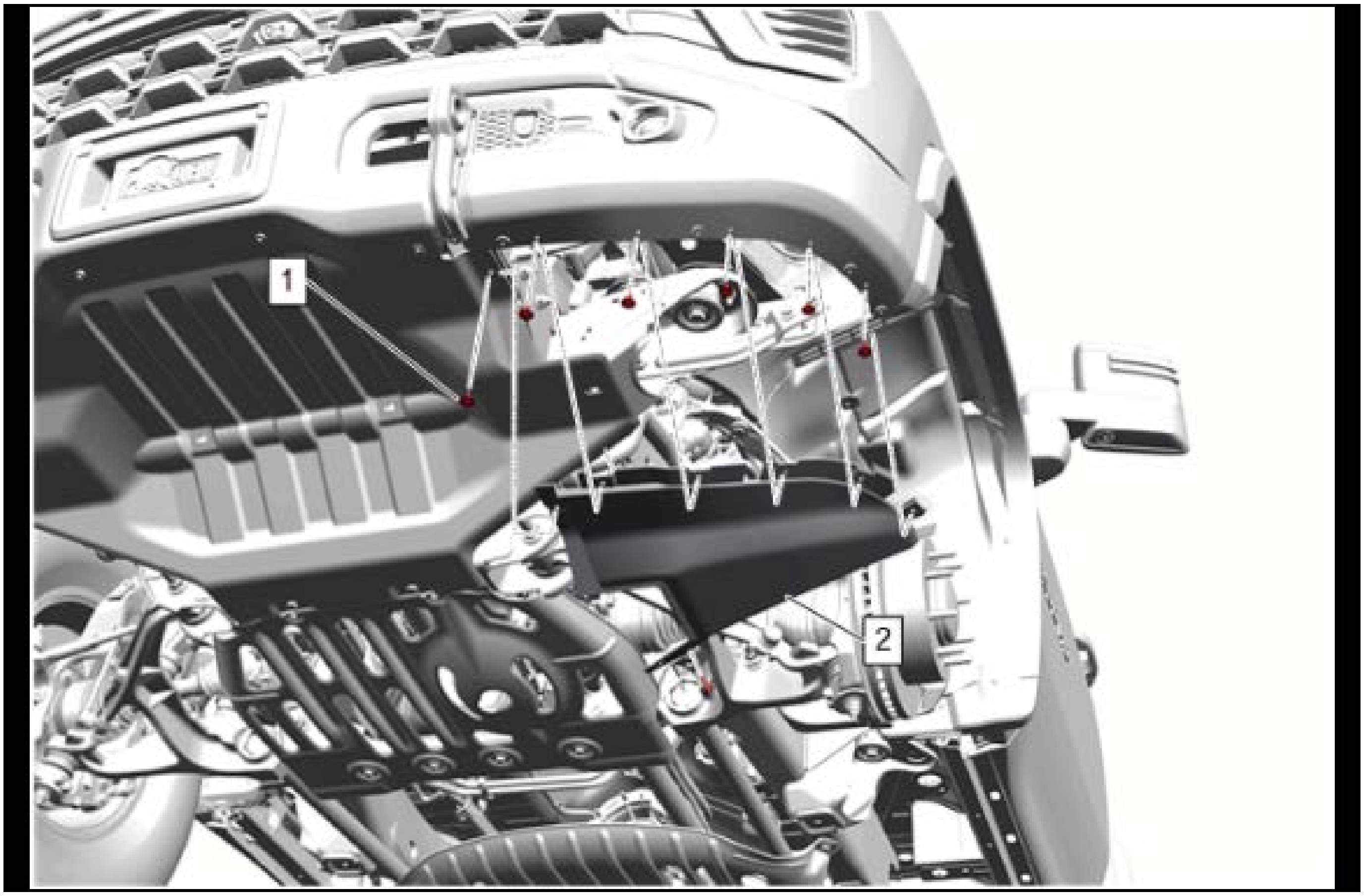
Installation Procedure



6288306

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

1. Insert the front parking assist alarm outer sensor (1) into the housing.
2. Connect the electrical connector.

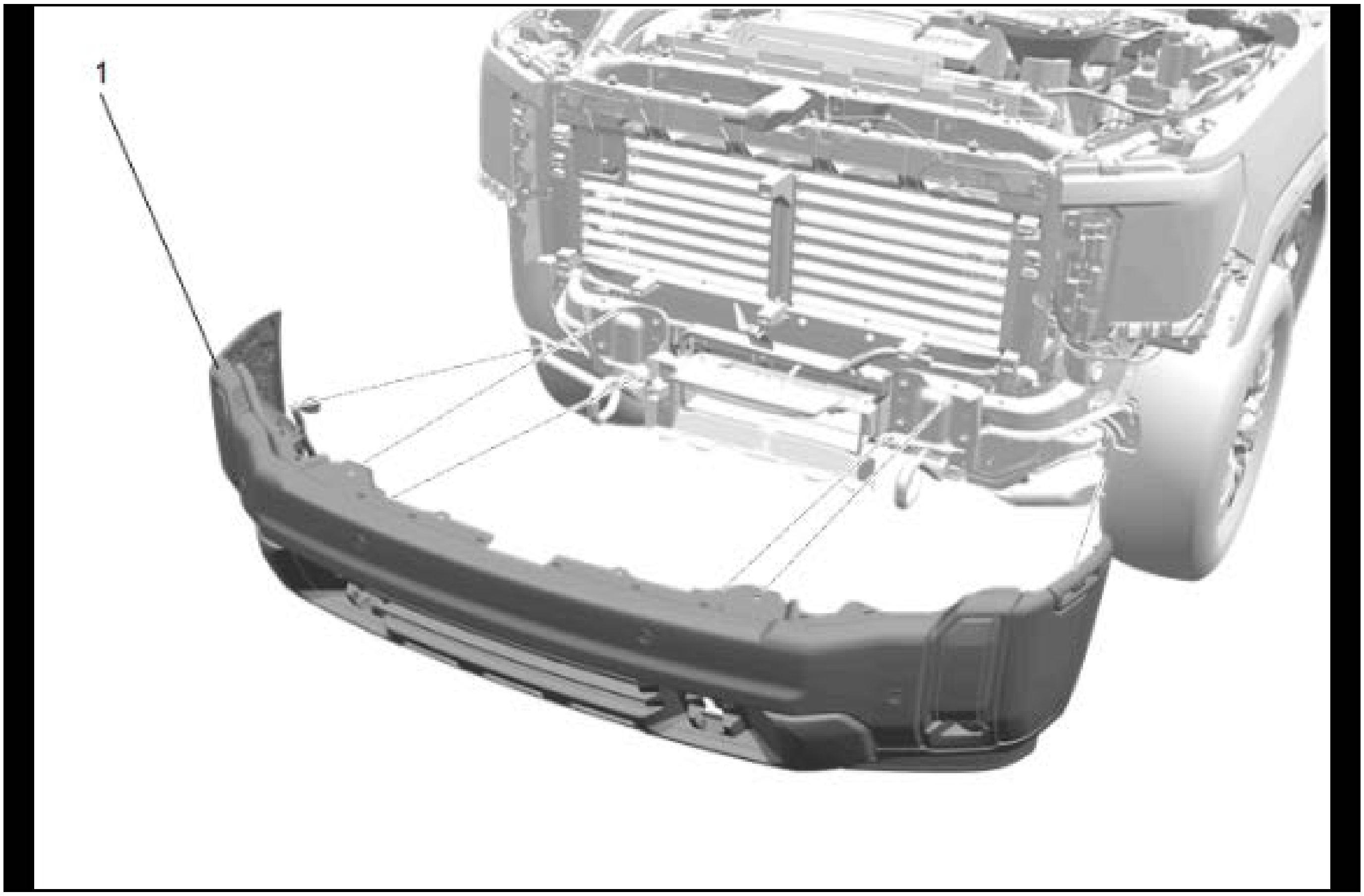


3. Front Bumper Lower Fascia (2) » Install
4. Front Bumper Fascia Bolt (1) » Install and tighten [7x]
5. Remove the support and lower the vehicle.

Front Parking Assist Alarm Outer Sensor Replacement

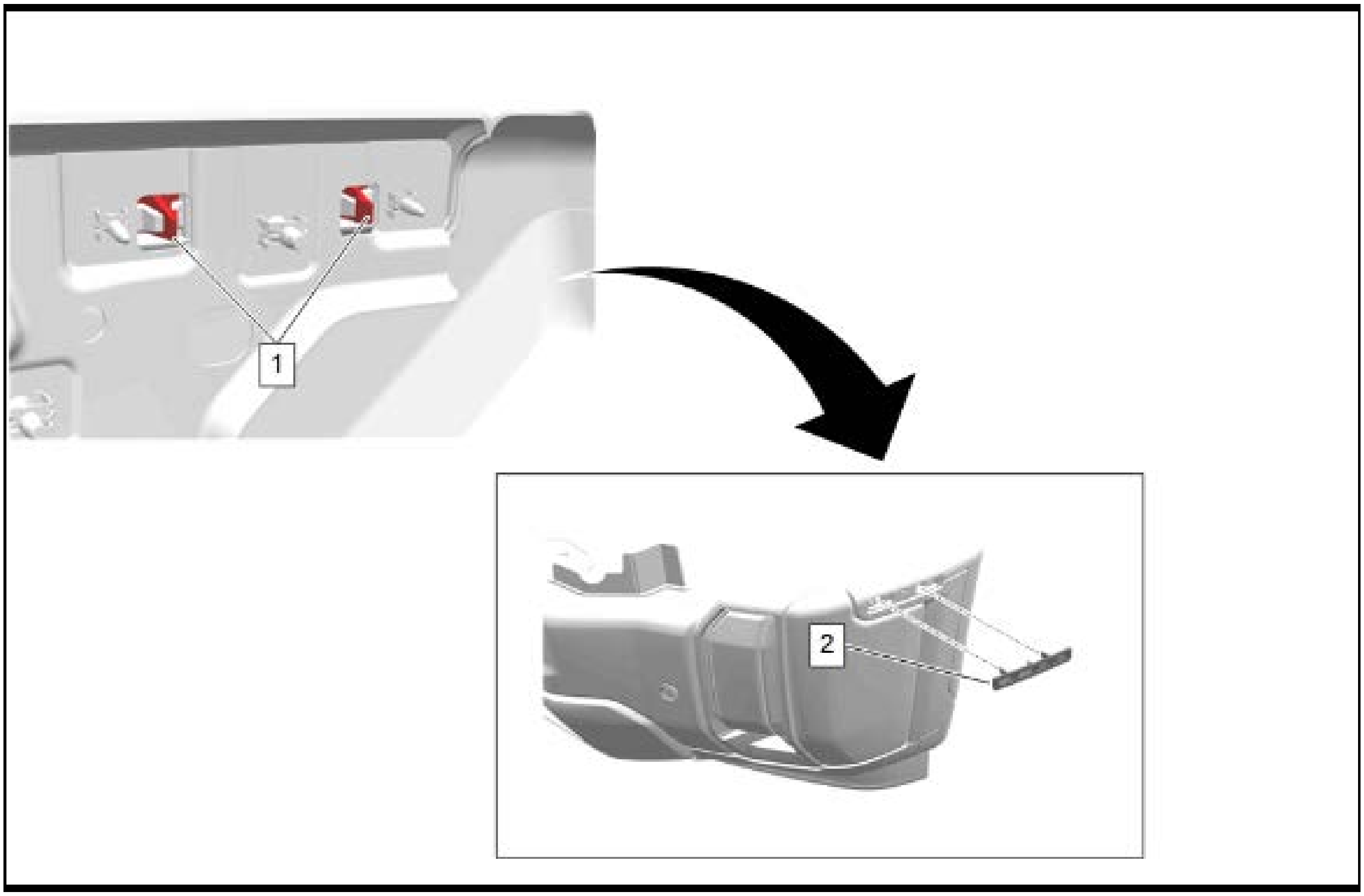
Object-ID=6288395 Owner=Hendrickson, Phil LMD=31-Mar-2023 LMB=Gonzales, Isaiah

Removal Procedure

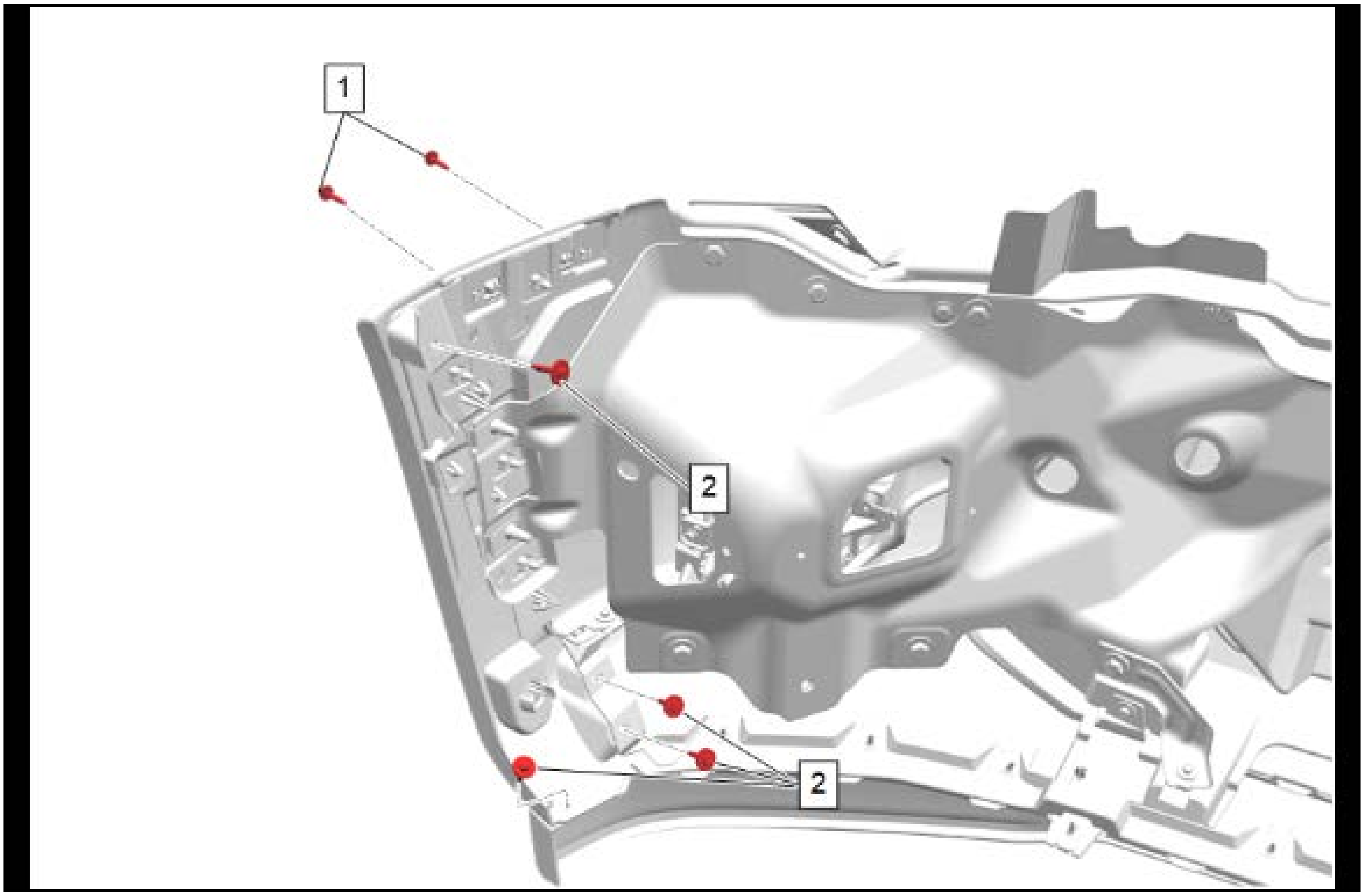


6259437

1. With the aid of an assistant, remove the impact bar. (1)

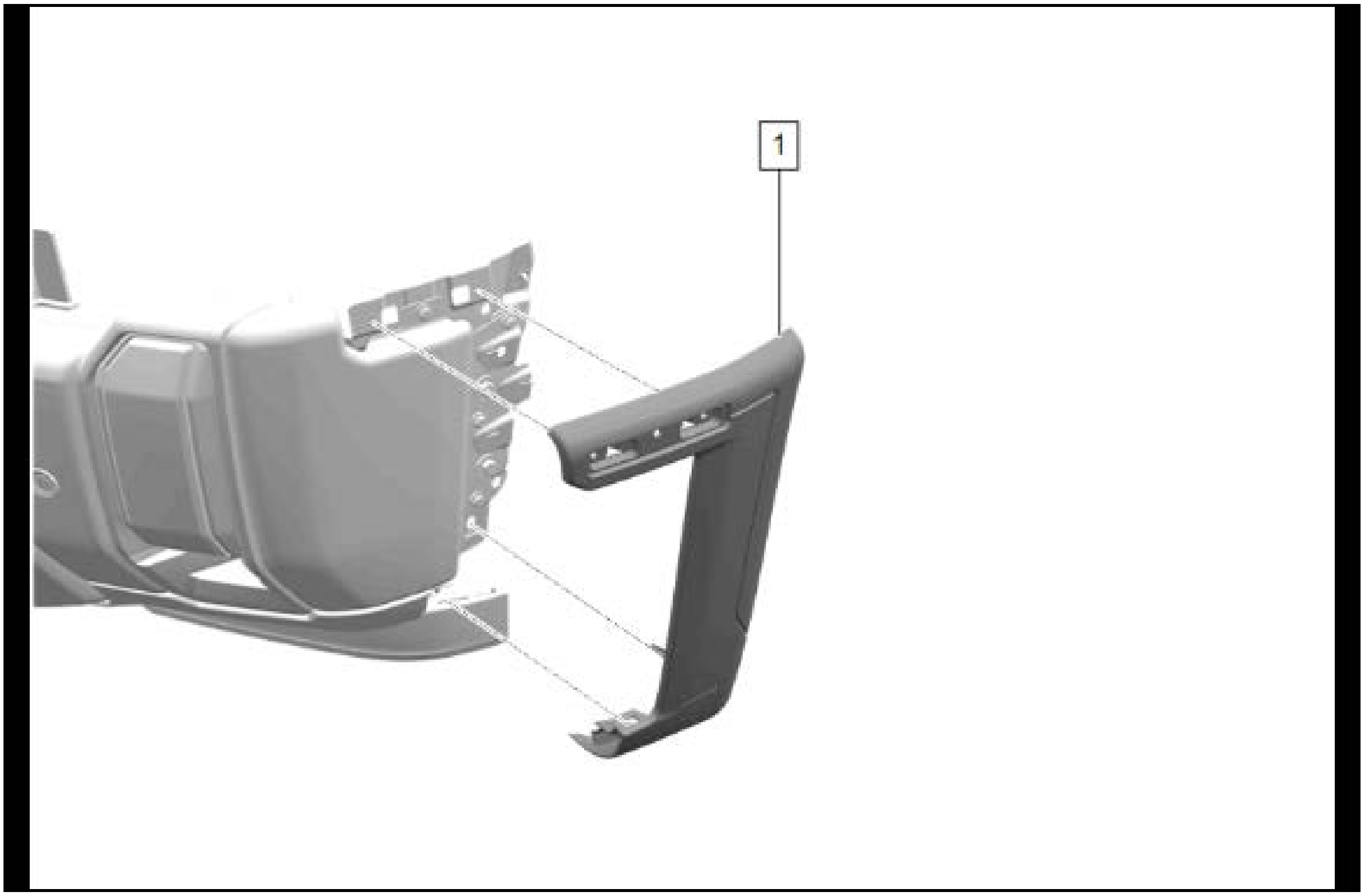


2. Using a suitable plastic trim tool, release the retaining tabs. (1)
3. Front Bumper Fascia Emblem (2) » Remove



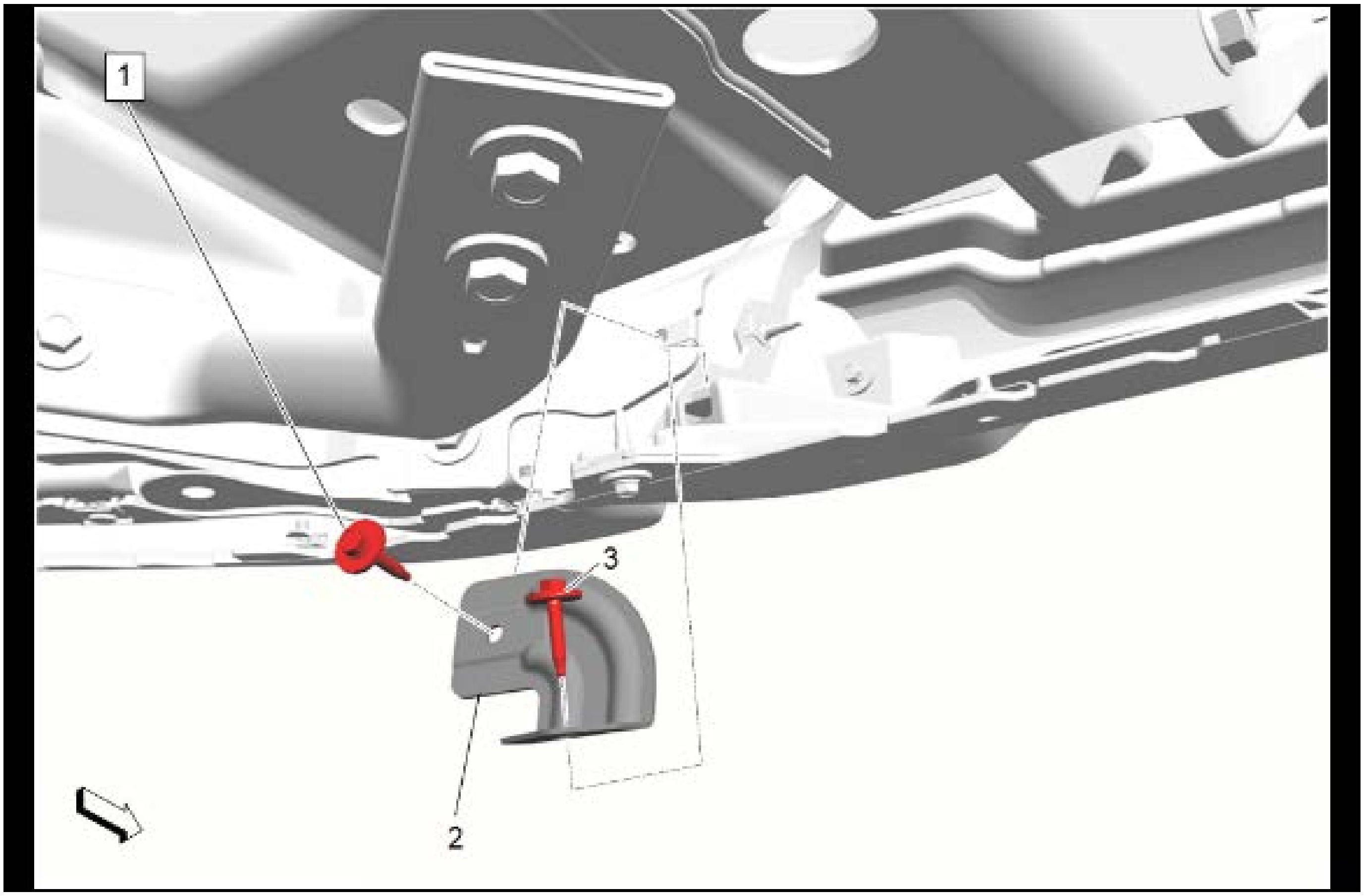
6215153

4. Front Fog Lamp Bolt (1) » Remove [2x]
5. Front Bumper Fascia Bolt (2) » Remove [4x]



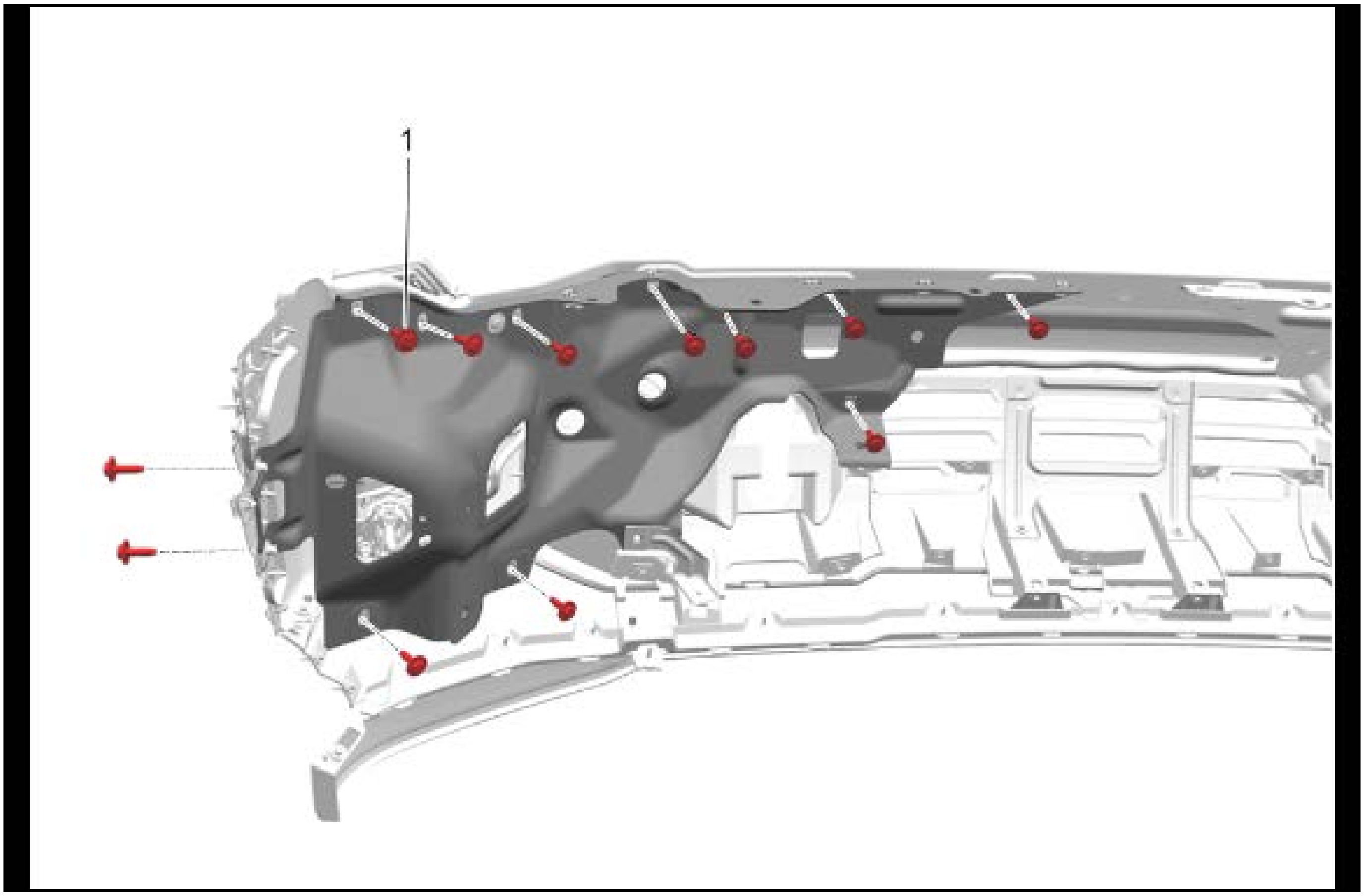
6215170

6. Front Bumper Fascia Molding (1) » Remove

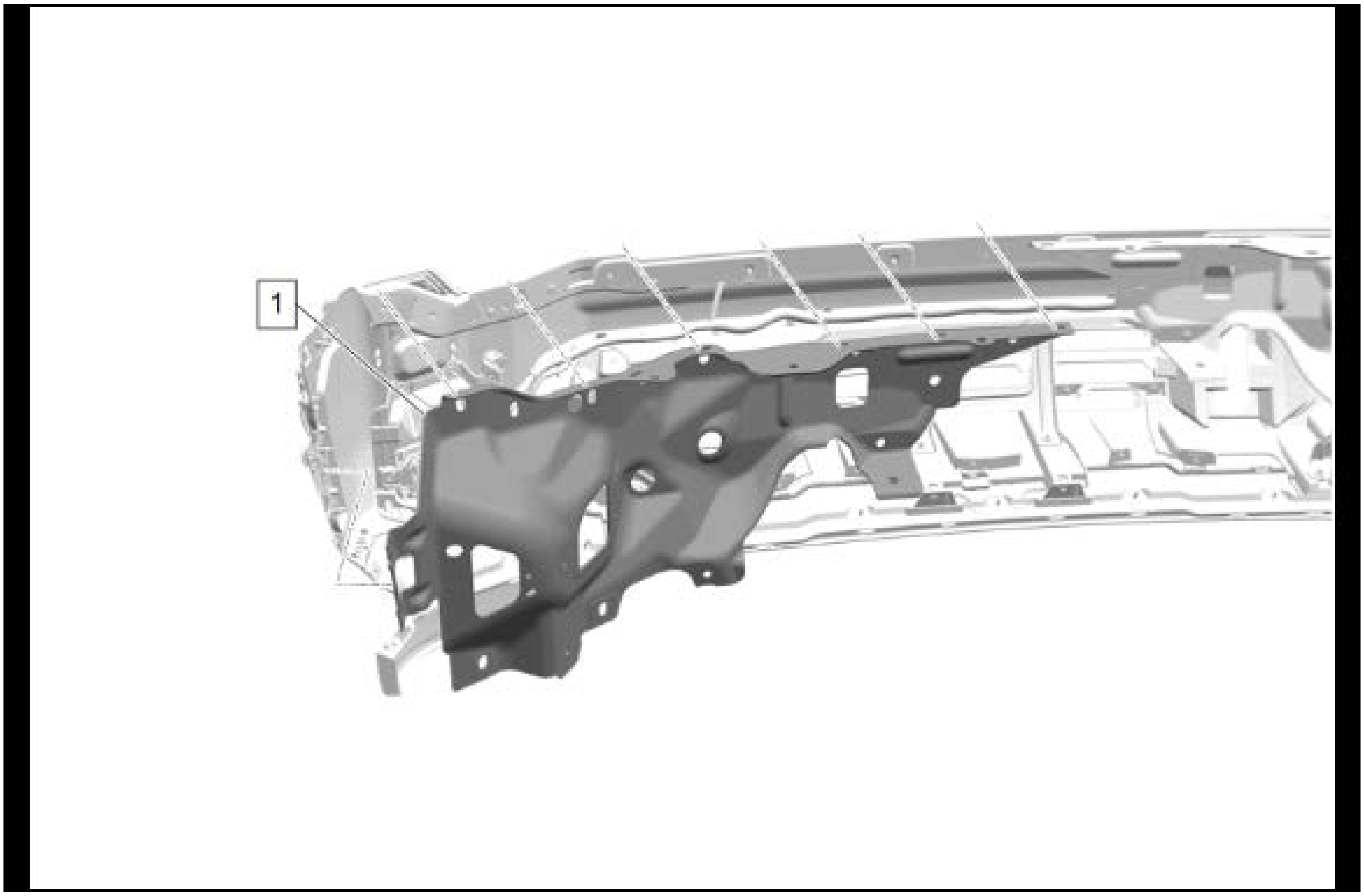


6196072

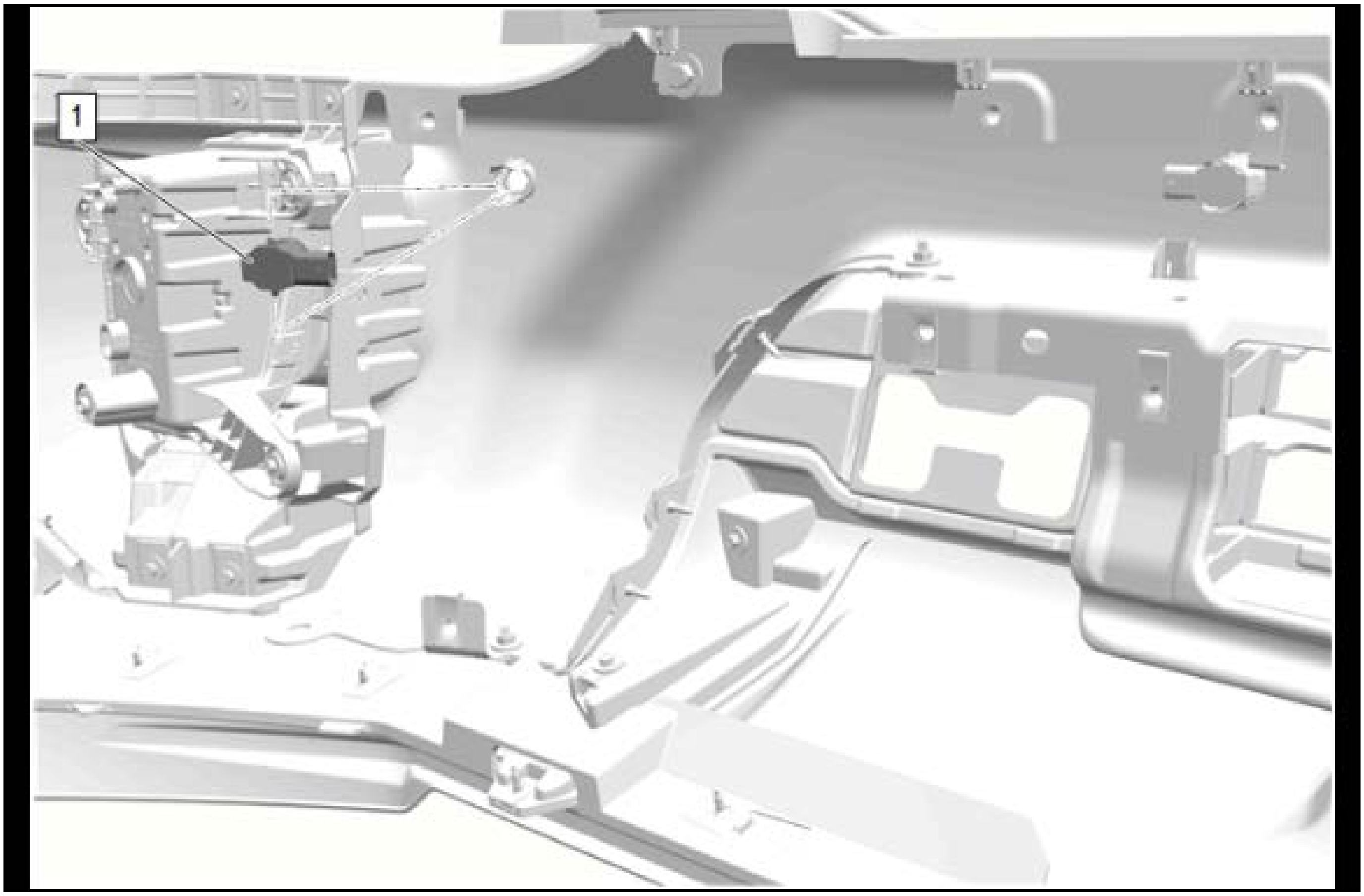
7. Front Bumper Lower Impact Bar Bolt (1) » Remove
8. Front Bumper Fascia Bolt (3) » Remove
9. Front Bumper Fascia Outer Bracket (2) » Remove



10. Front Bumper Impact Bar Bolt (1) » Remove [12x]
11. Disconnect the wiring harness retainers.



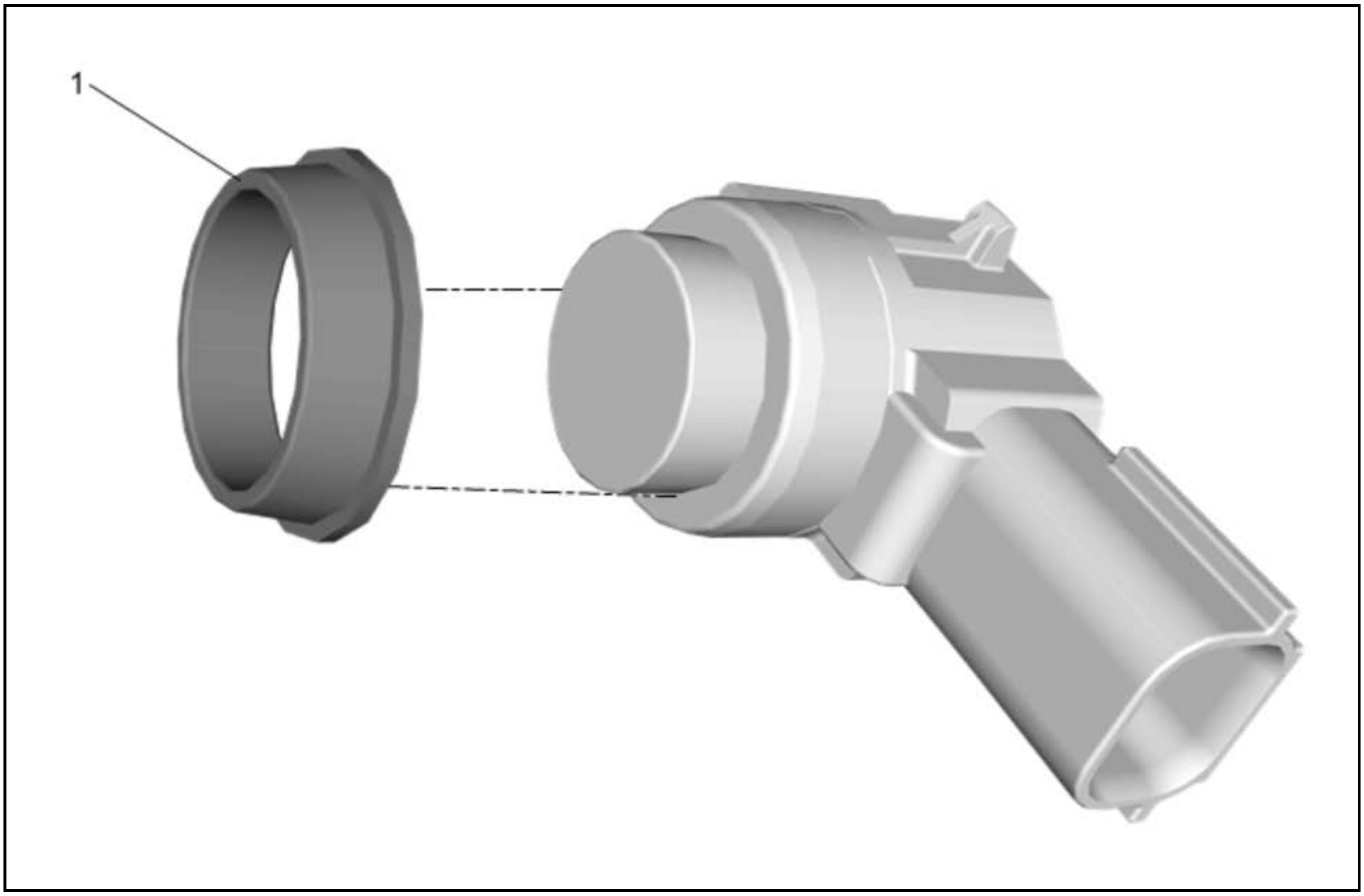
12. Front Bumper Impact Bar Bracket (1) » Remove



6197201

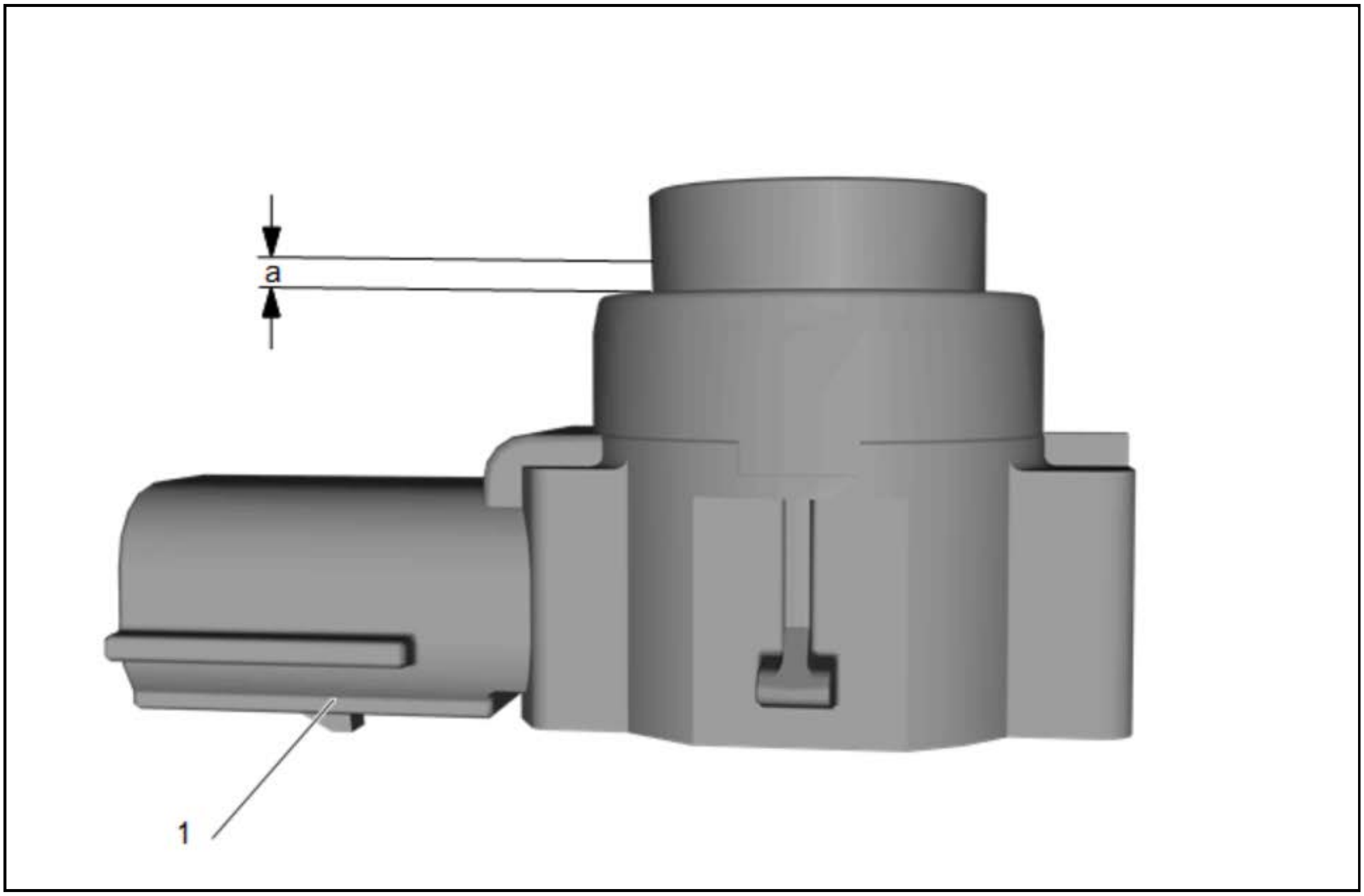
Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

13. Lift the locking tabs on the housing and remove the front parking assist alarm outer sensor (1).
14. Disconnect the electrical connector.



15. Parking Assist Alarm Sensor Ring (1) » Remove

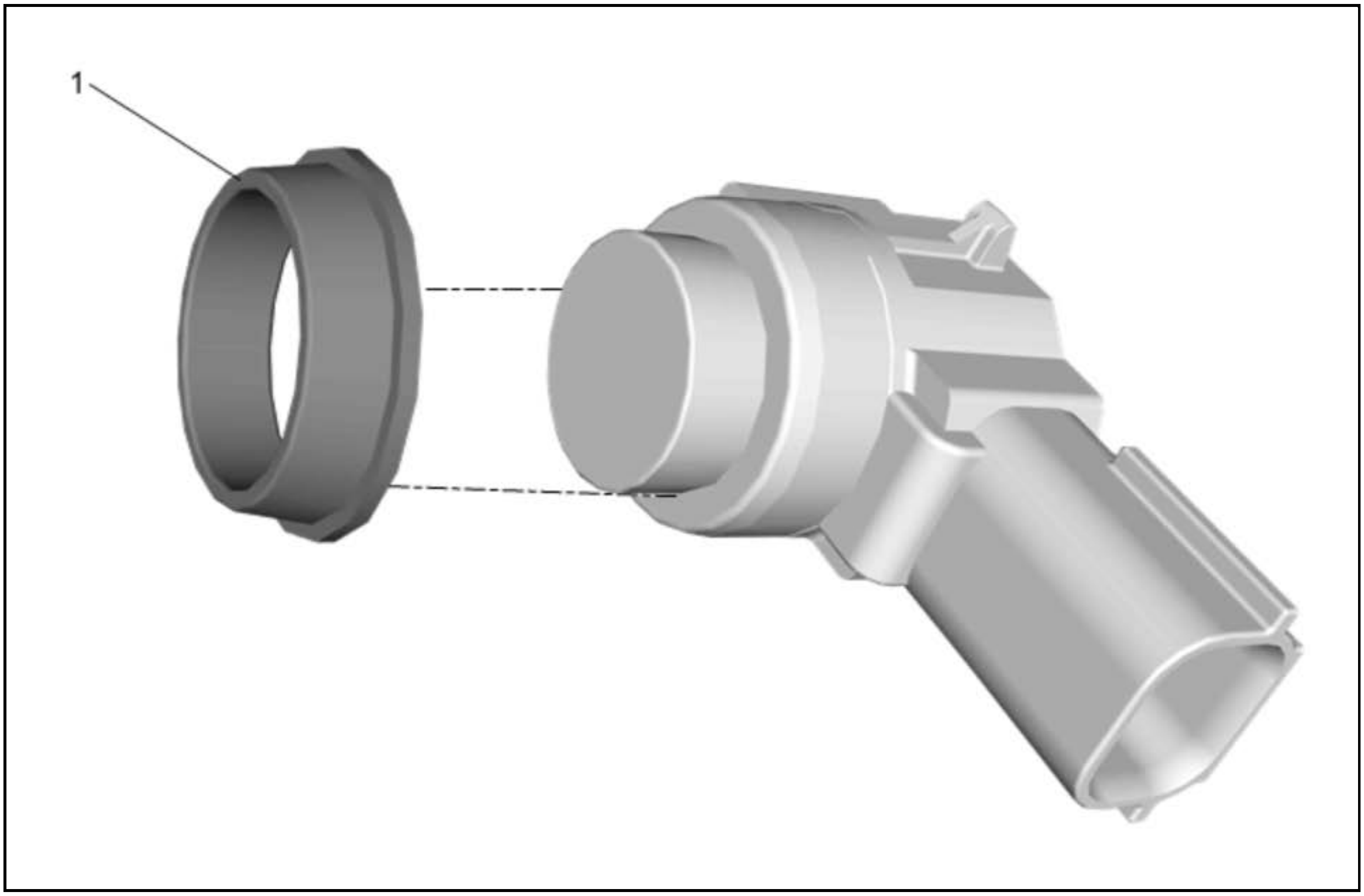
Painting Procedure



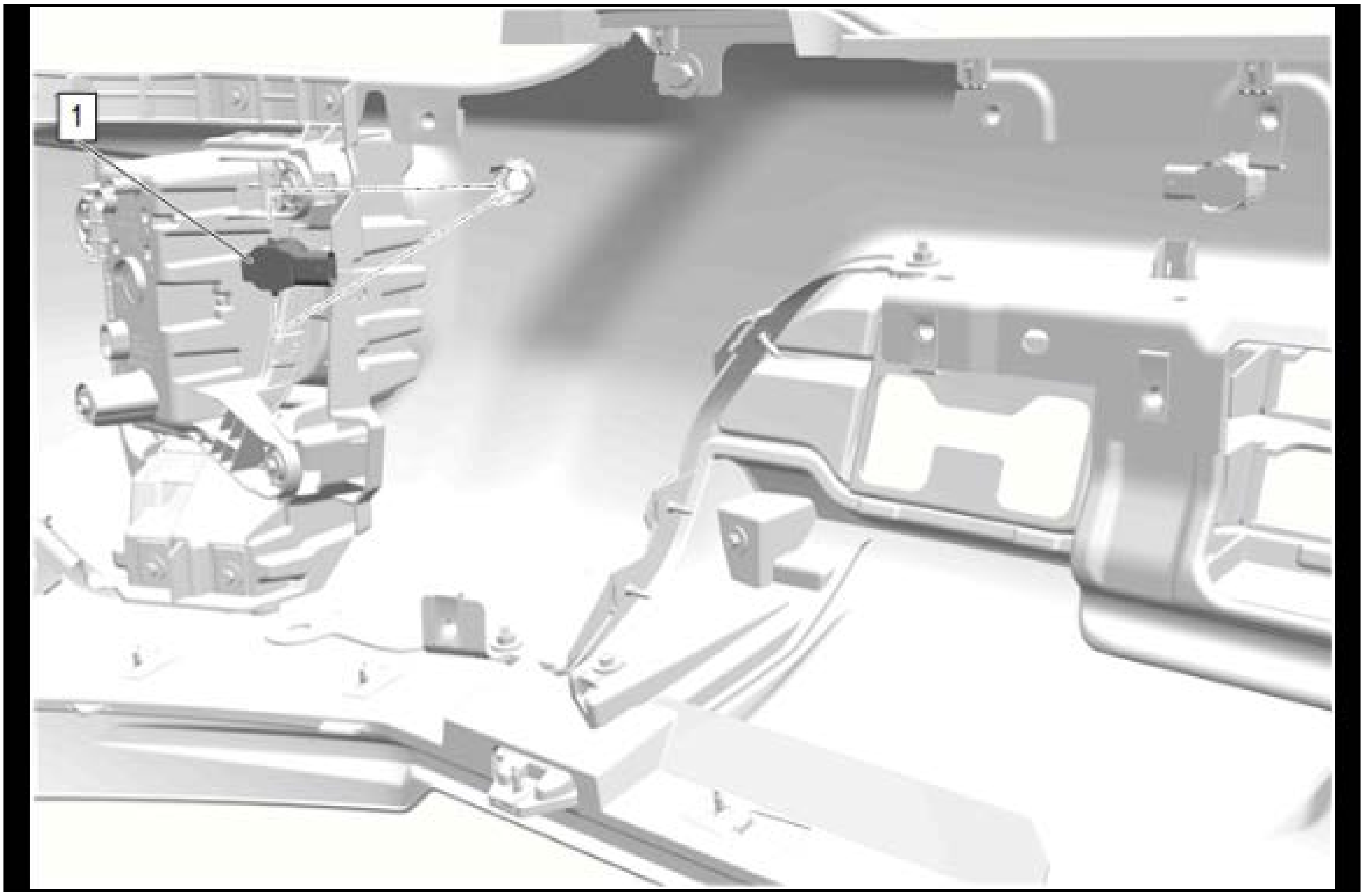
Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



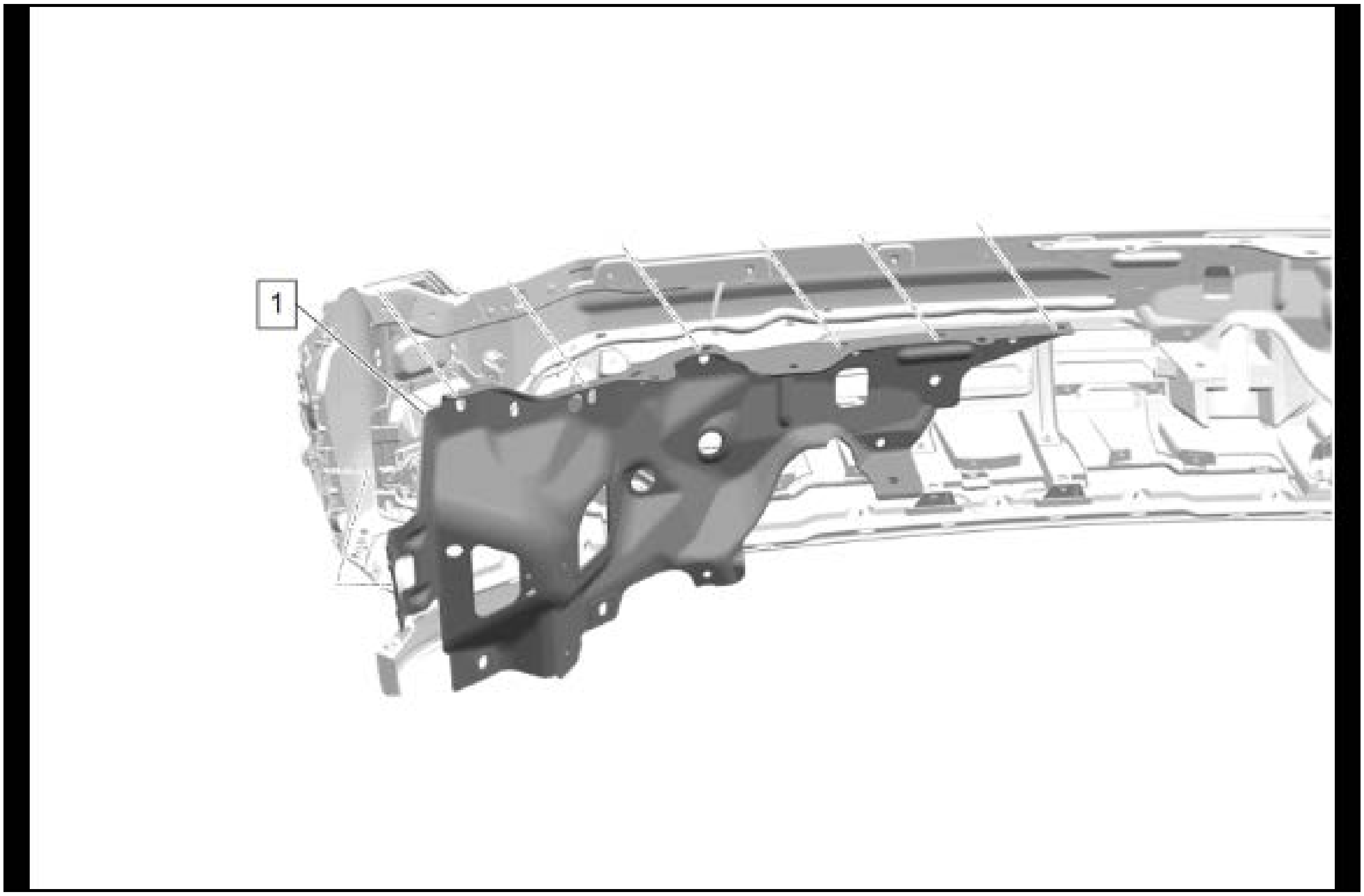
1. Parking Assist Alarm Sensor Ring (1) » Install



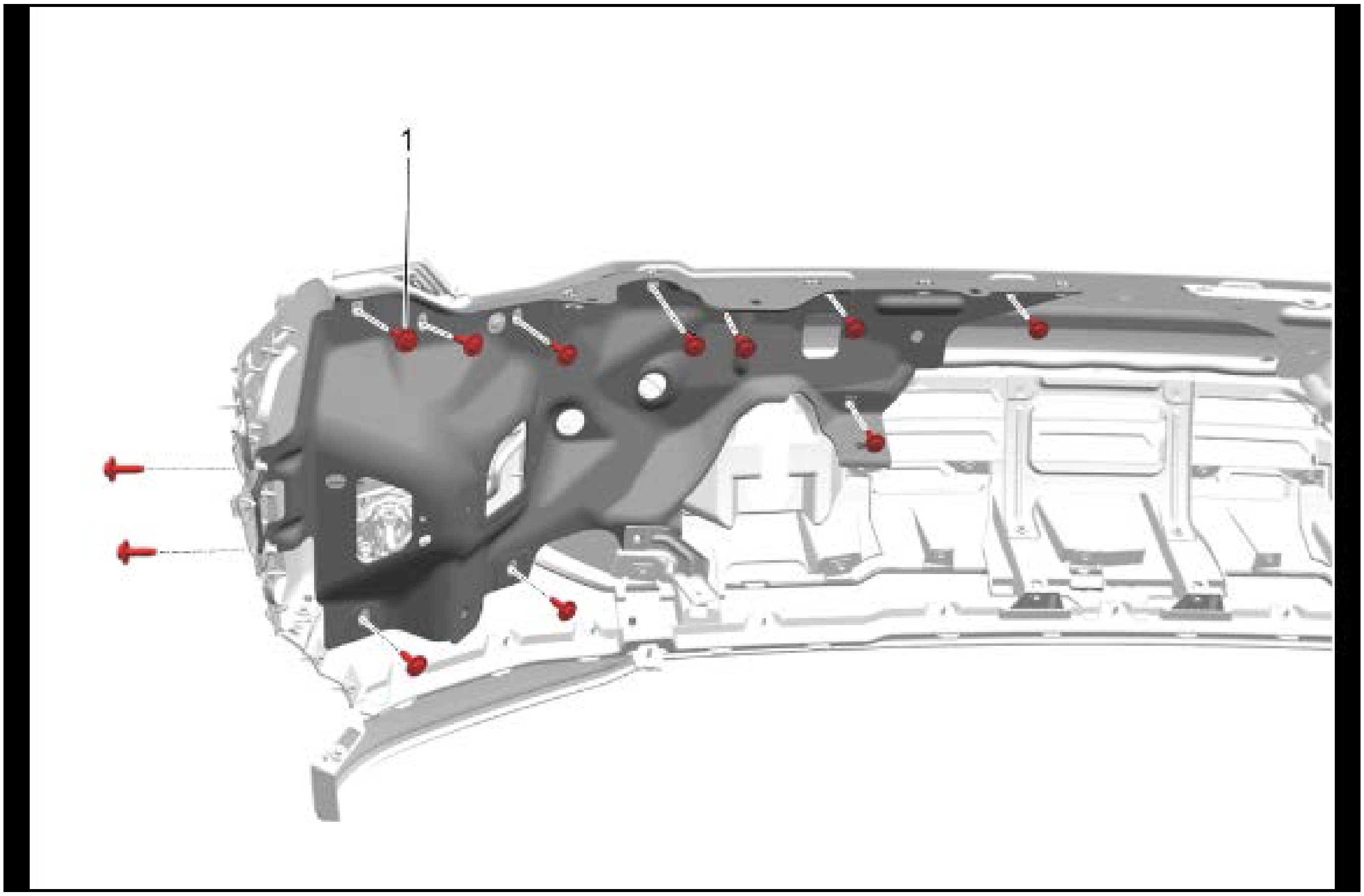
6197201

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

2. Insert the front parking assist alarm outer sensor (1) into the housing.
3. Connect the electrical connector.



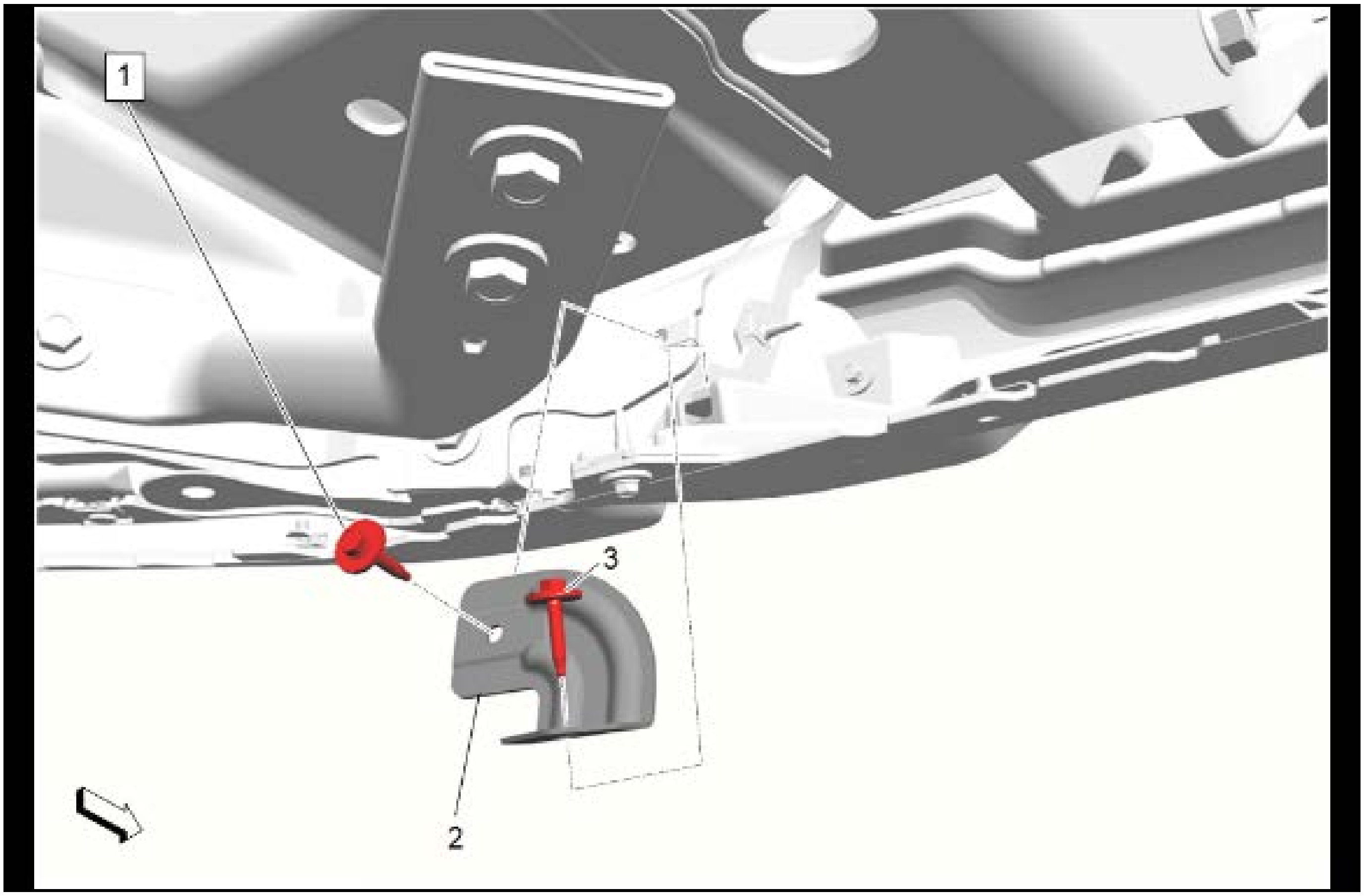
4. Front Bumper Impact Bar Bracket (1) » Install
5. Connect the wiring harness retainers as necessary.



6302308

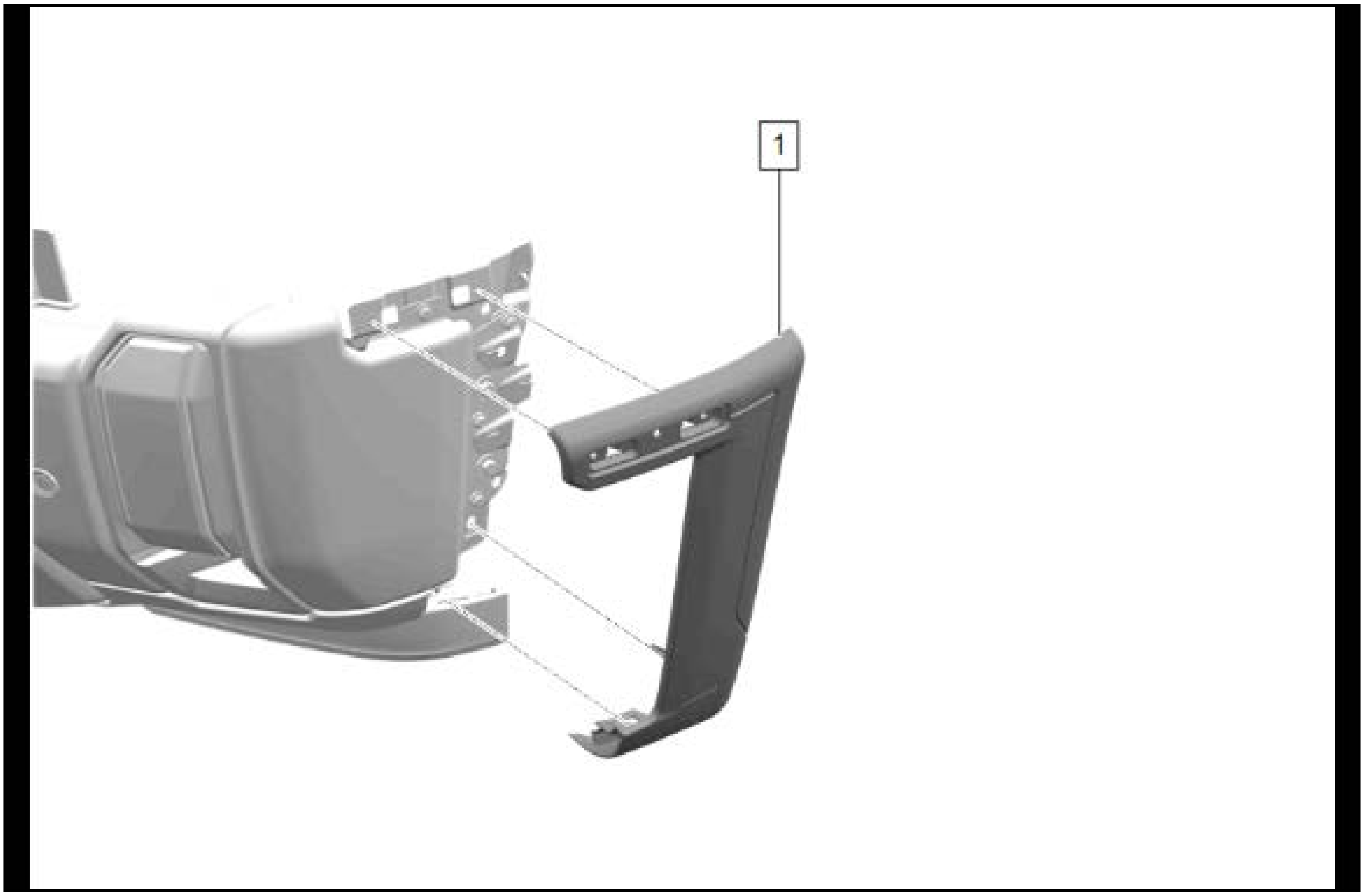
Caution: Refer to Fastener Caution.

6. Front Bumper Impact Bar Bolt (1) » Install and tighten [12x]

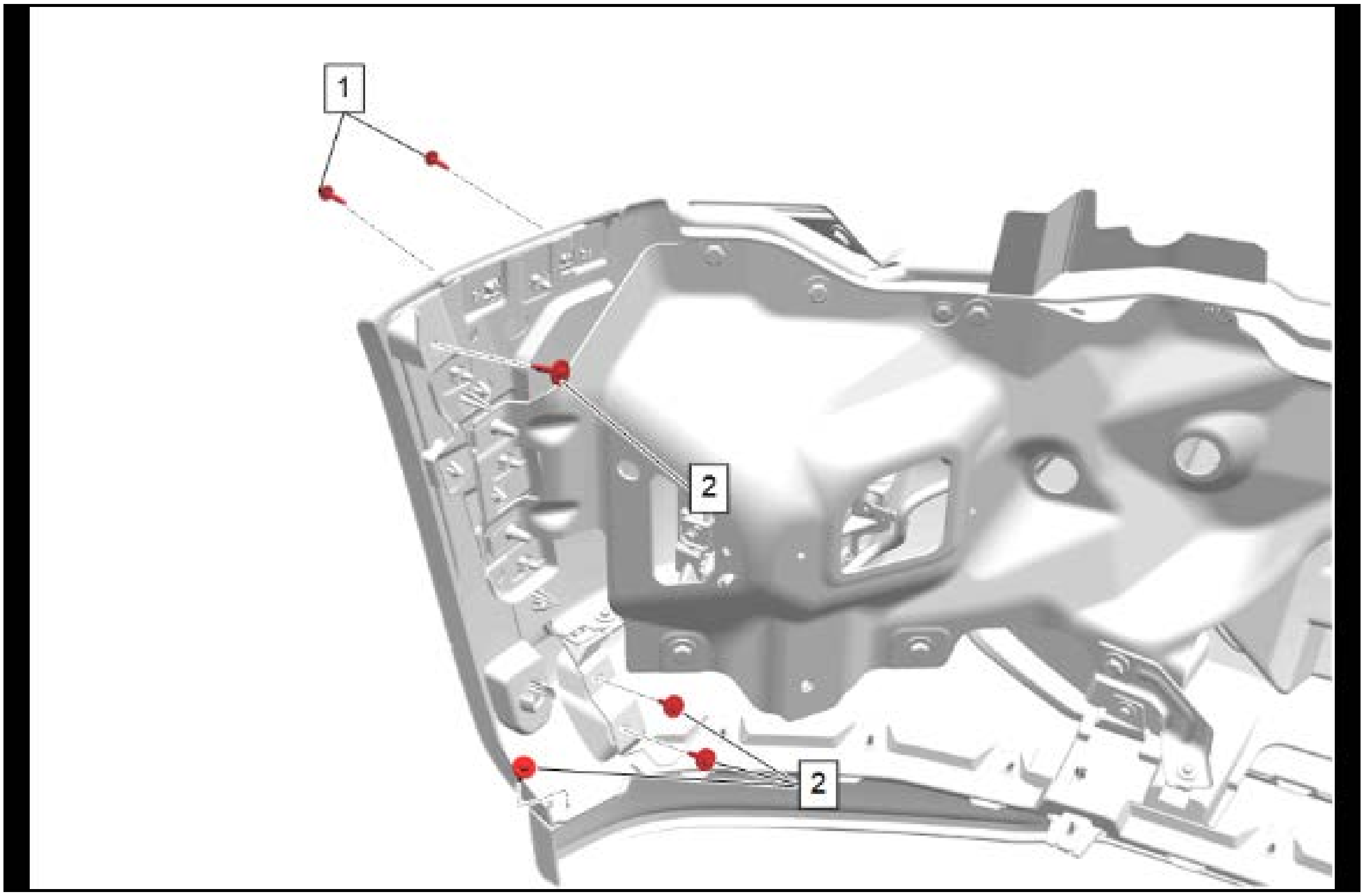


6196072

7. Front Bumper Fascia Outer Bracket (2) » Install
8. Front Bumper Fascia Bolt (3) » Install and tighten
9. Front Bumper Lower Impact Bar Bolt (1) » Install and tighten

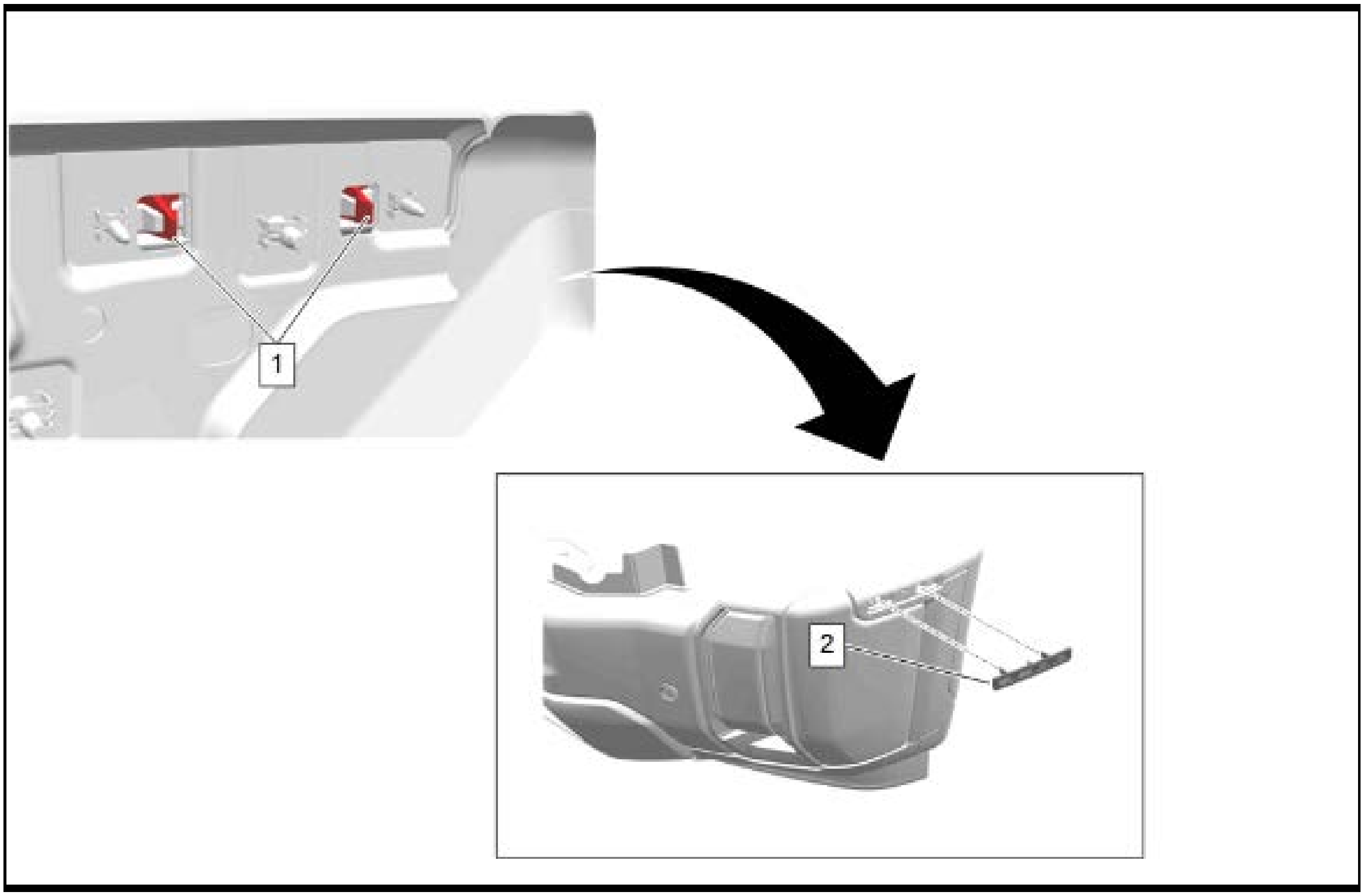


10. Front Bumper Fascia Molding (1) » Install



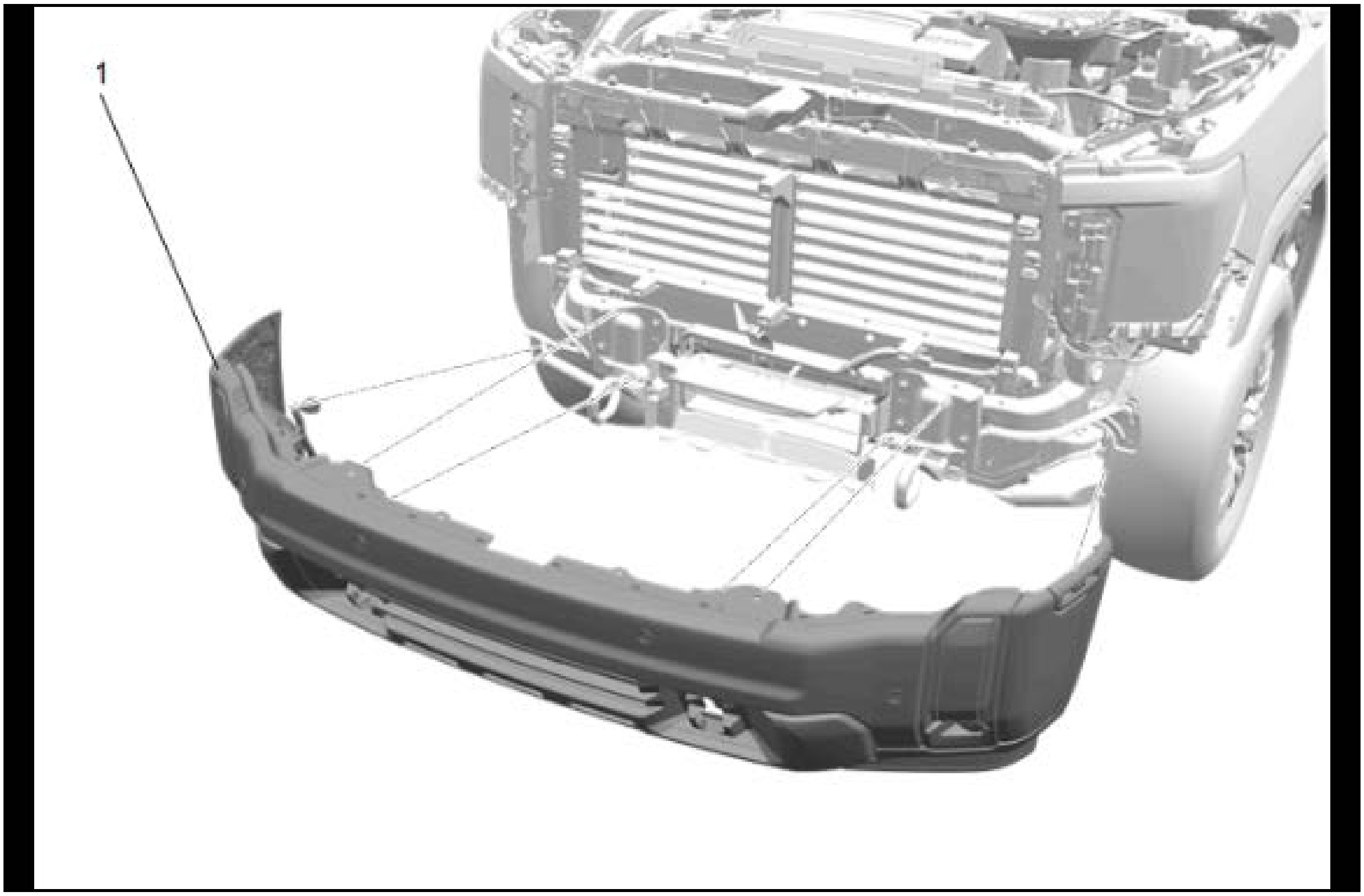
6215153

11. Front Fog Lamp Bolt (2) » Install and tighten [4x]
12. Front Bumper Fascia Bolt (1) » Install and tighten [2x]



6215158

13. Front Bumper Fascia Emblem (2) » Install

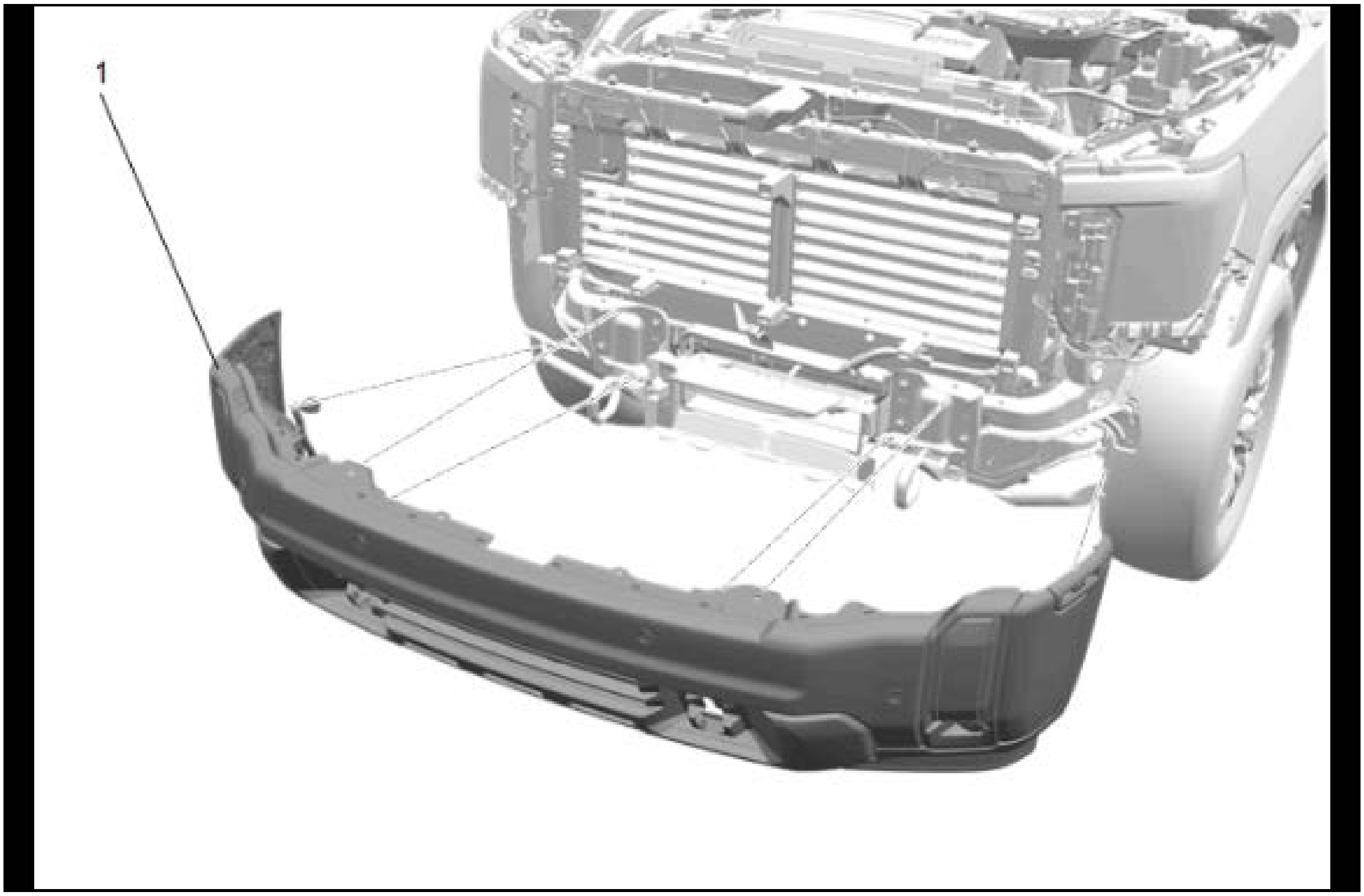


14. With the aid of an assistant, install the impact bar. (1)

Front Parking Assist Alarm Sensor Replacement

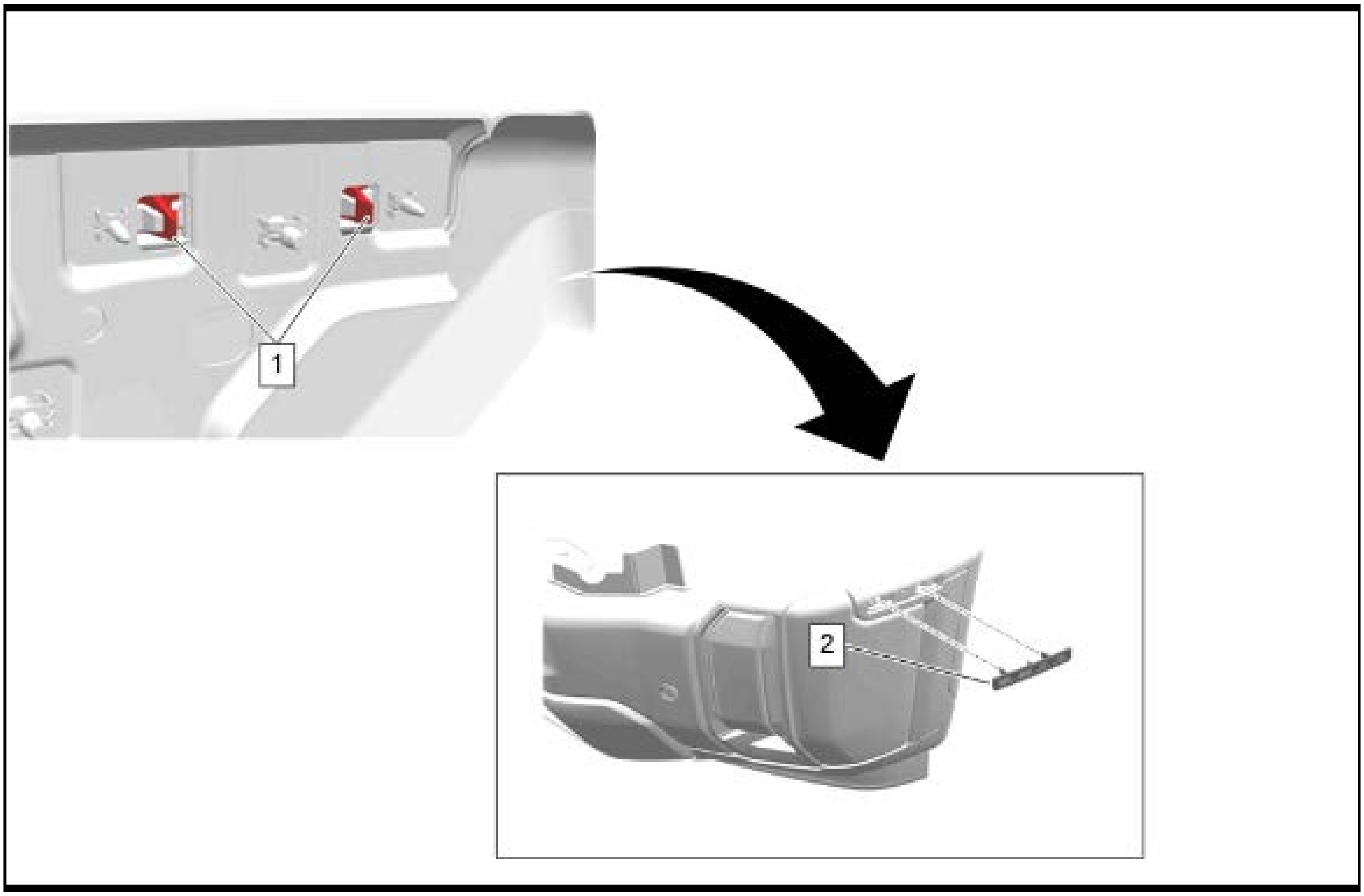
Object-ID=6287084 Owner=Hendrickson, Phil LMD=05-Apr-2023 LMB=Gonzales, Isaiah

Removal Procedure



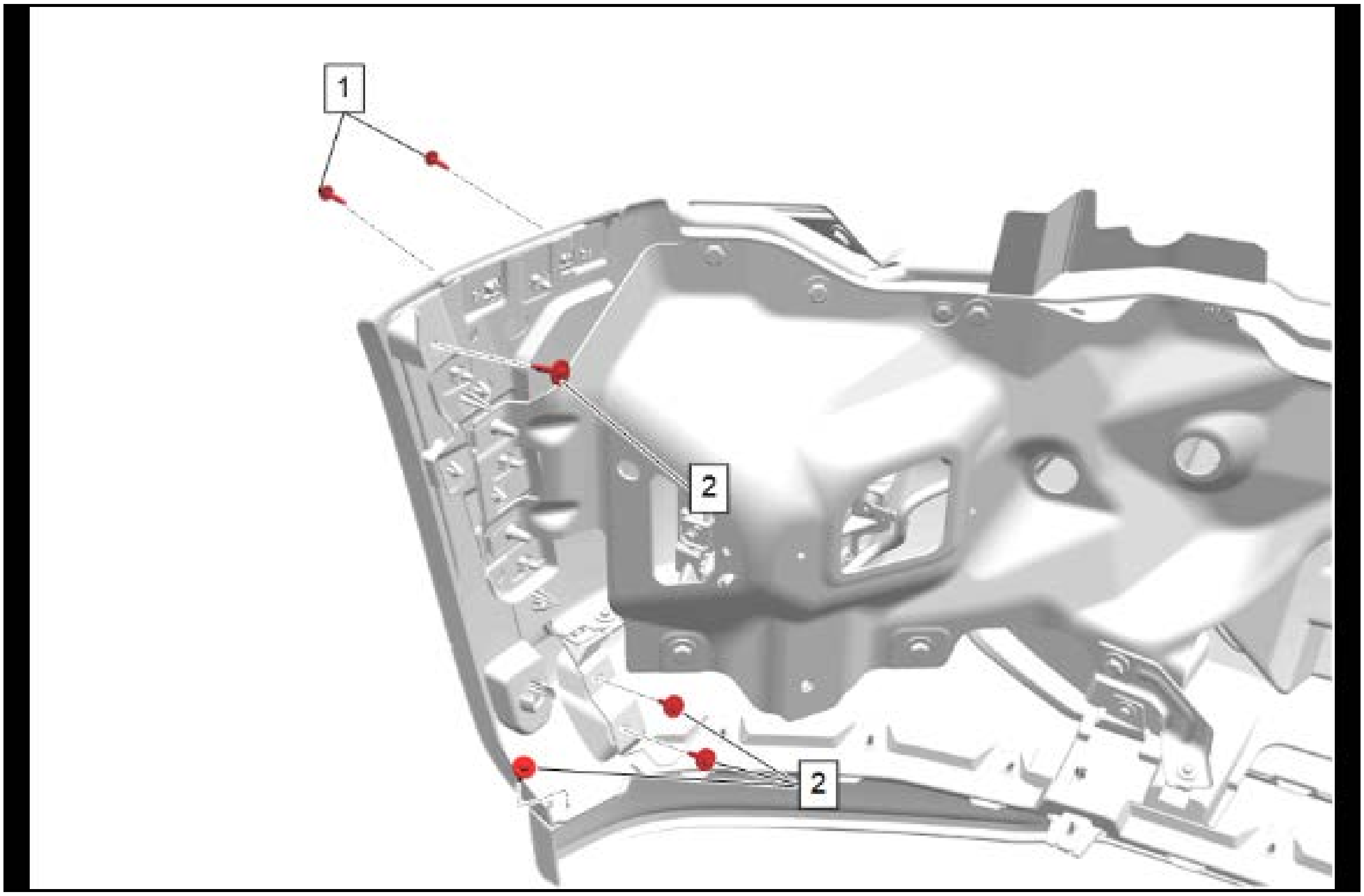
6259437

1. With the aid of an assistant, remove the impact bar. (1)

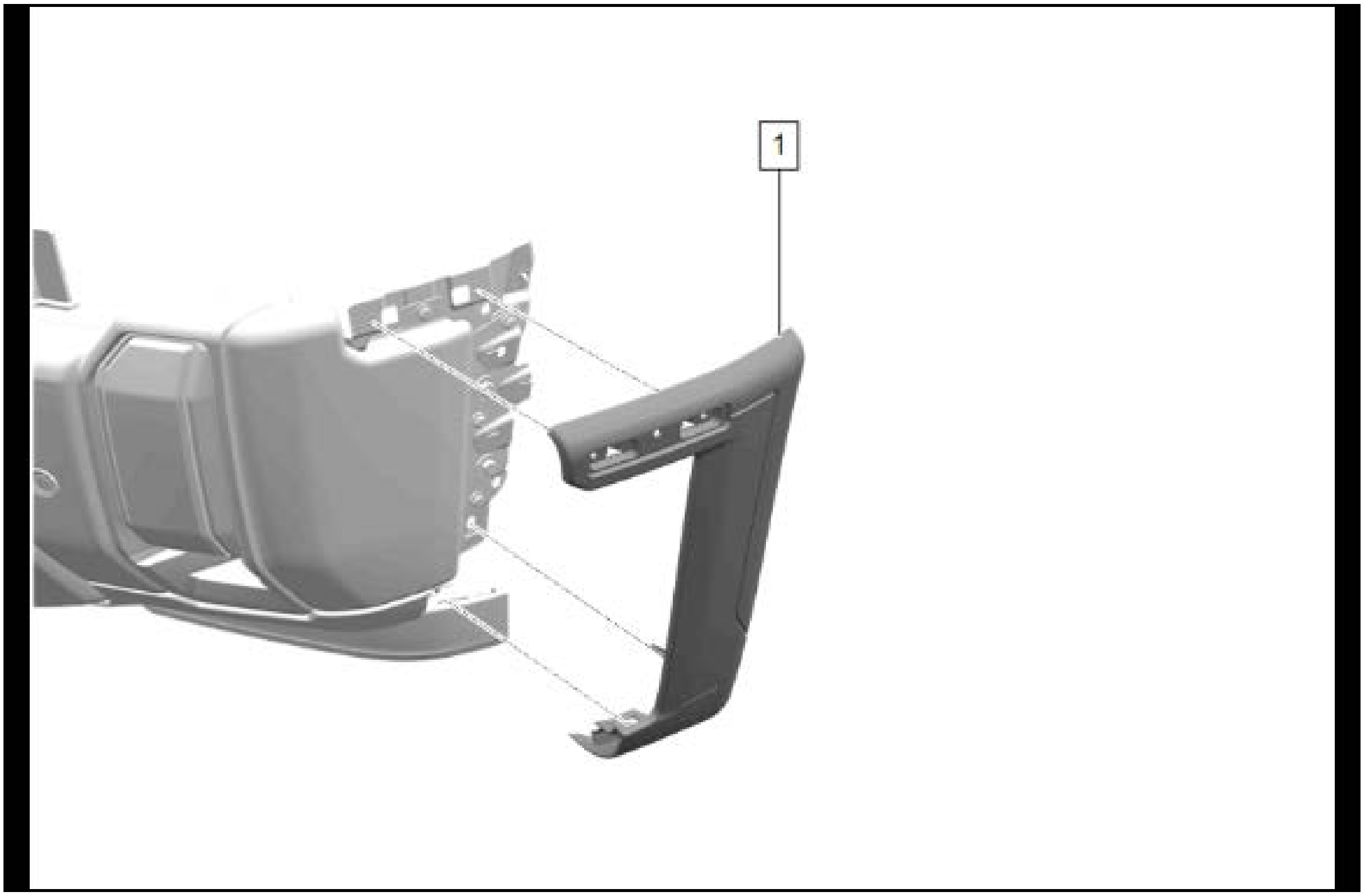


6215158

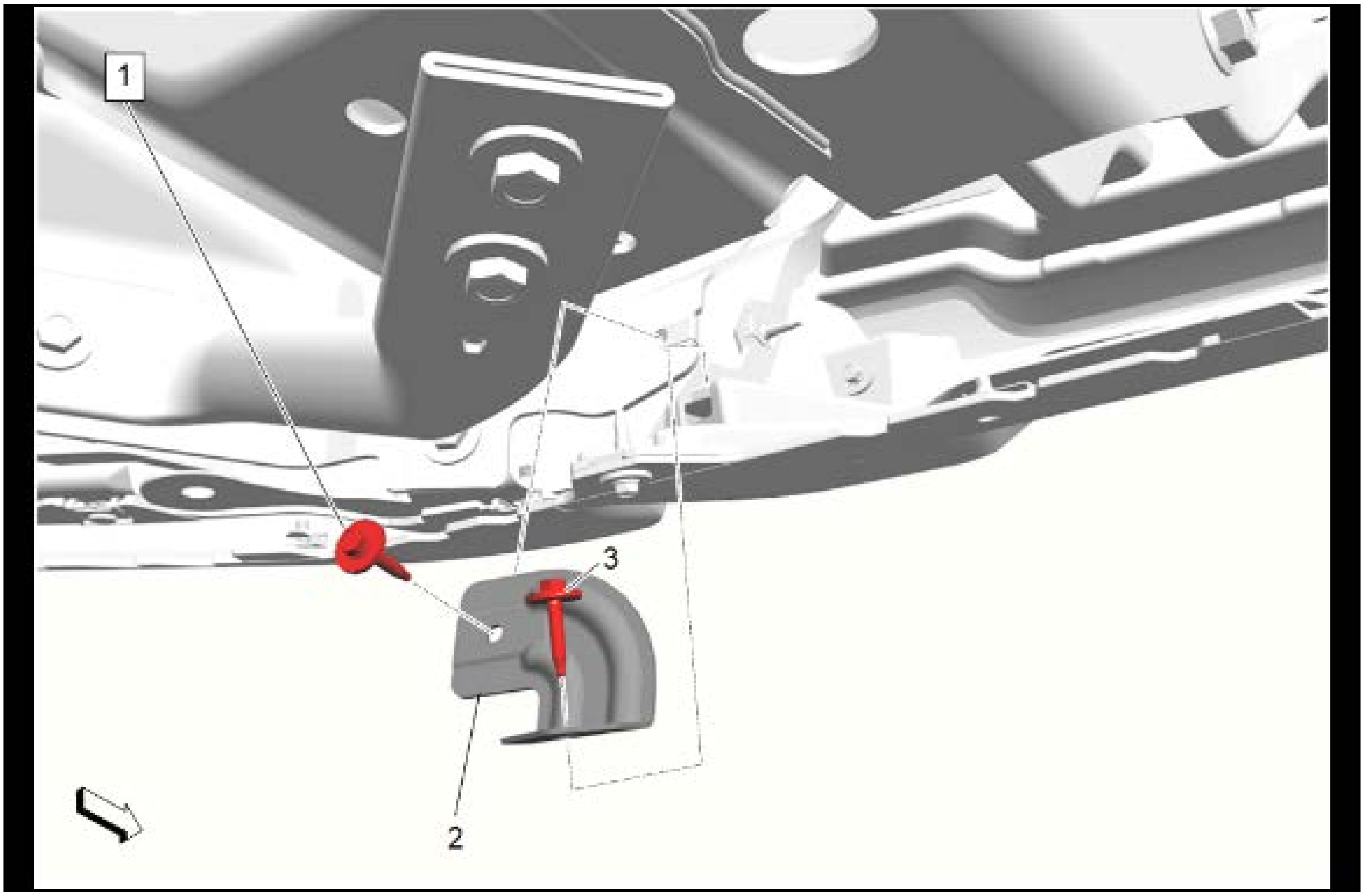
2. Using a suitable plastic trim tool, release the retaining tabs. (1)
3. Front Bumper Fascia Emblem (2) » Remove



4. Front Fog Lamp Bolt (1) » Remove [2x]
5. Front Bumper Fascia Bolt (2) » Remove [4x]

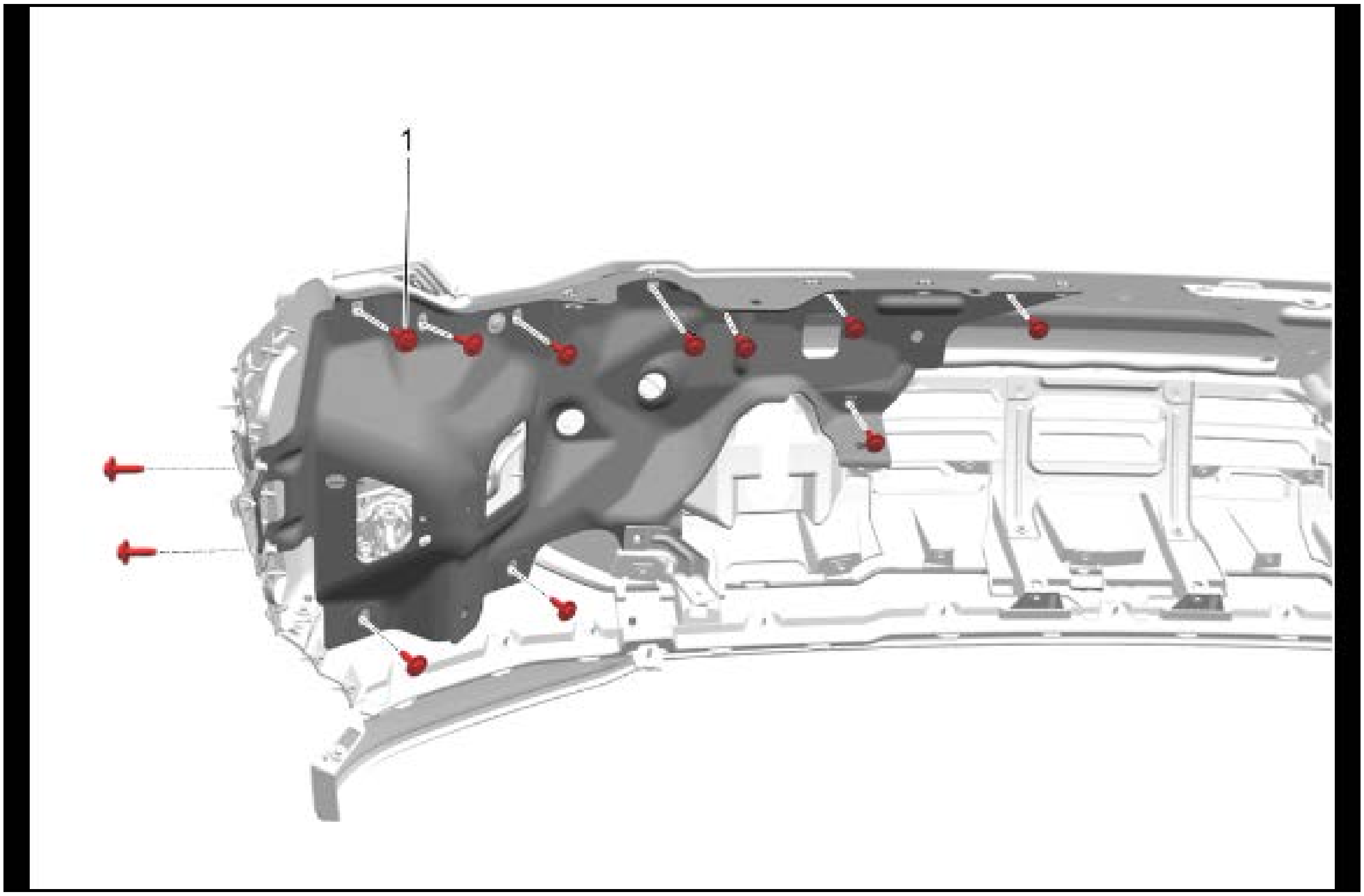


6. Front Bumper Fascia Molding (1) » Remove

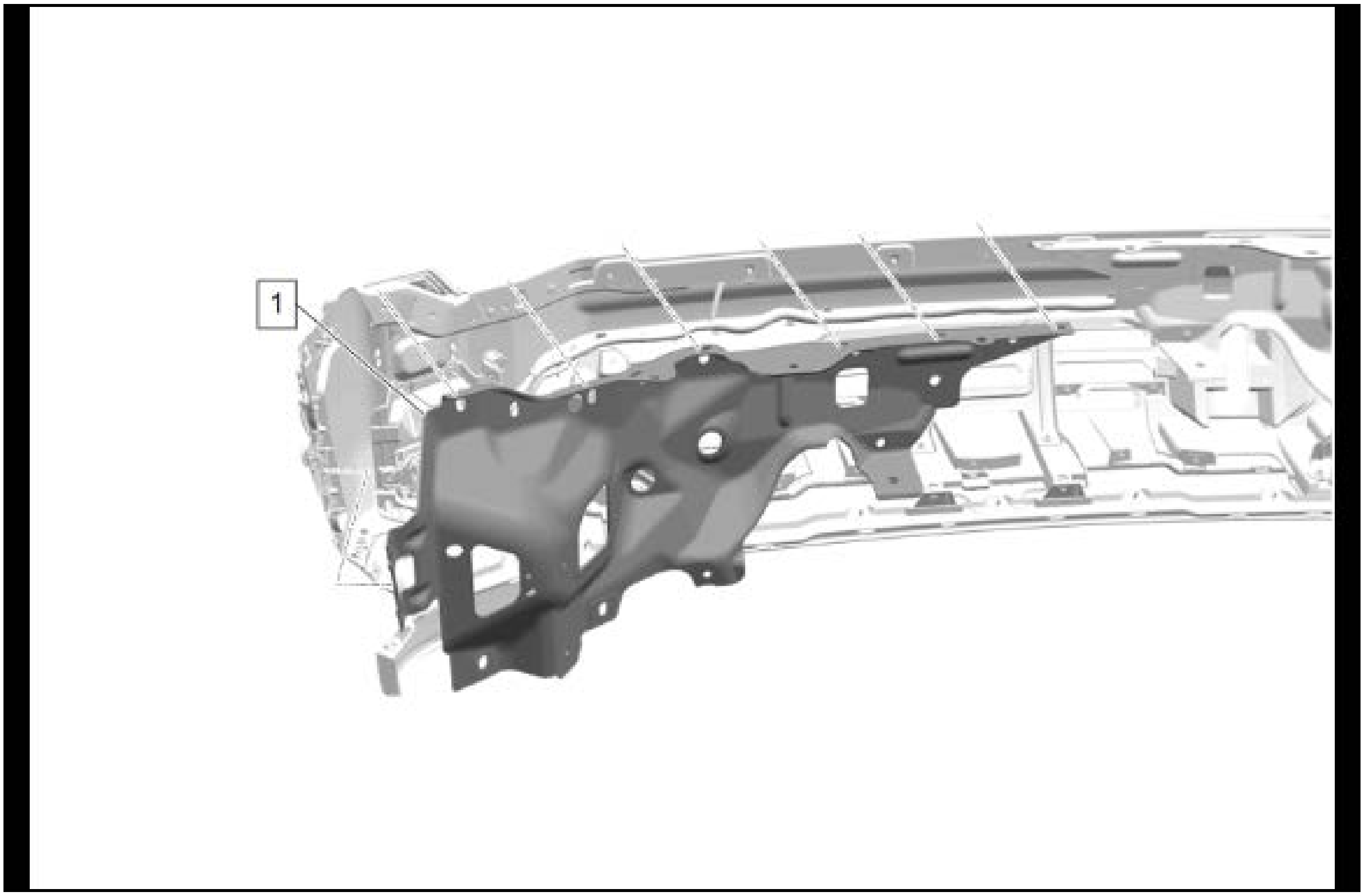


6196072

7. Front Bumper Lower Impact Bar Bolt (1) » Remove
8. Front Bumper Fascia Bolt (3) » Remove
9. Front Bumper Fascia Outer Bracket (2) » Remove

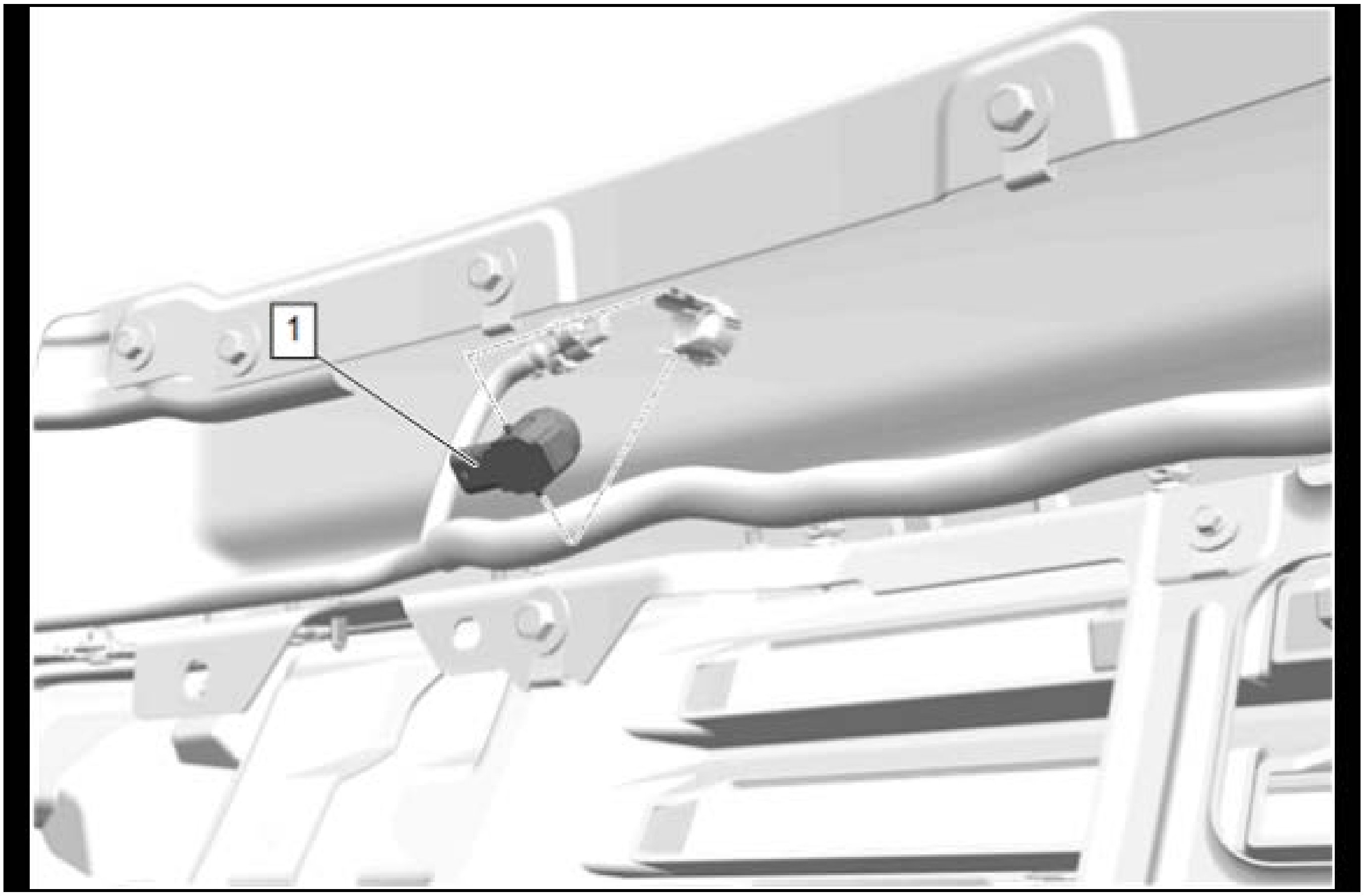


10. Front Bumper Impact Bar Bolt (1) » Remove [12x]



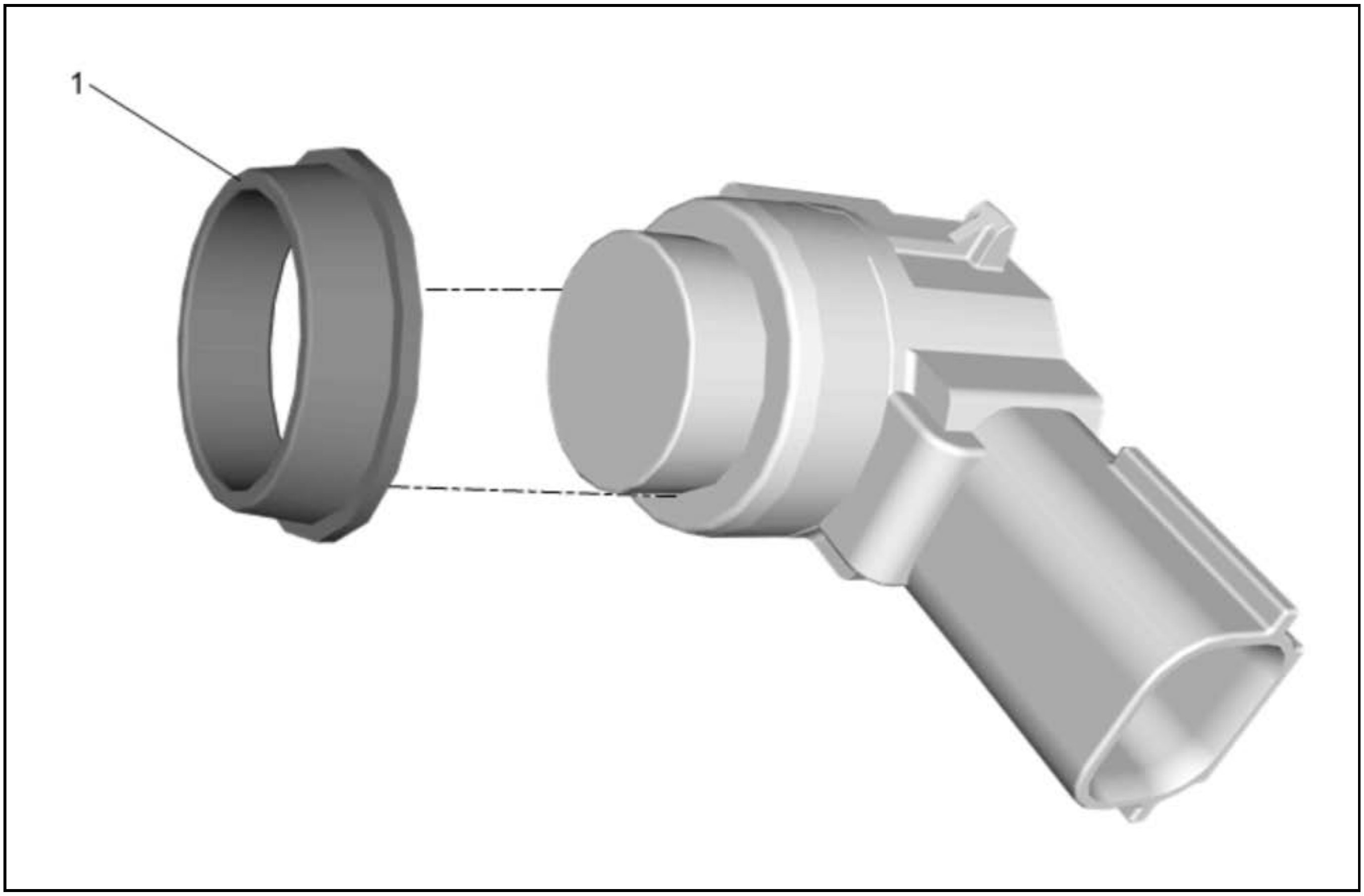
6215277

11. Disconnect the wiring harness retainers.
12. Front Bumper Impact Bar Bracket (1) » Remove



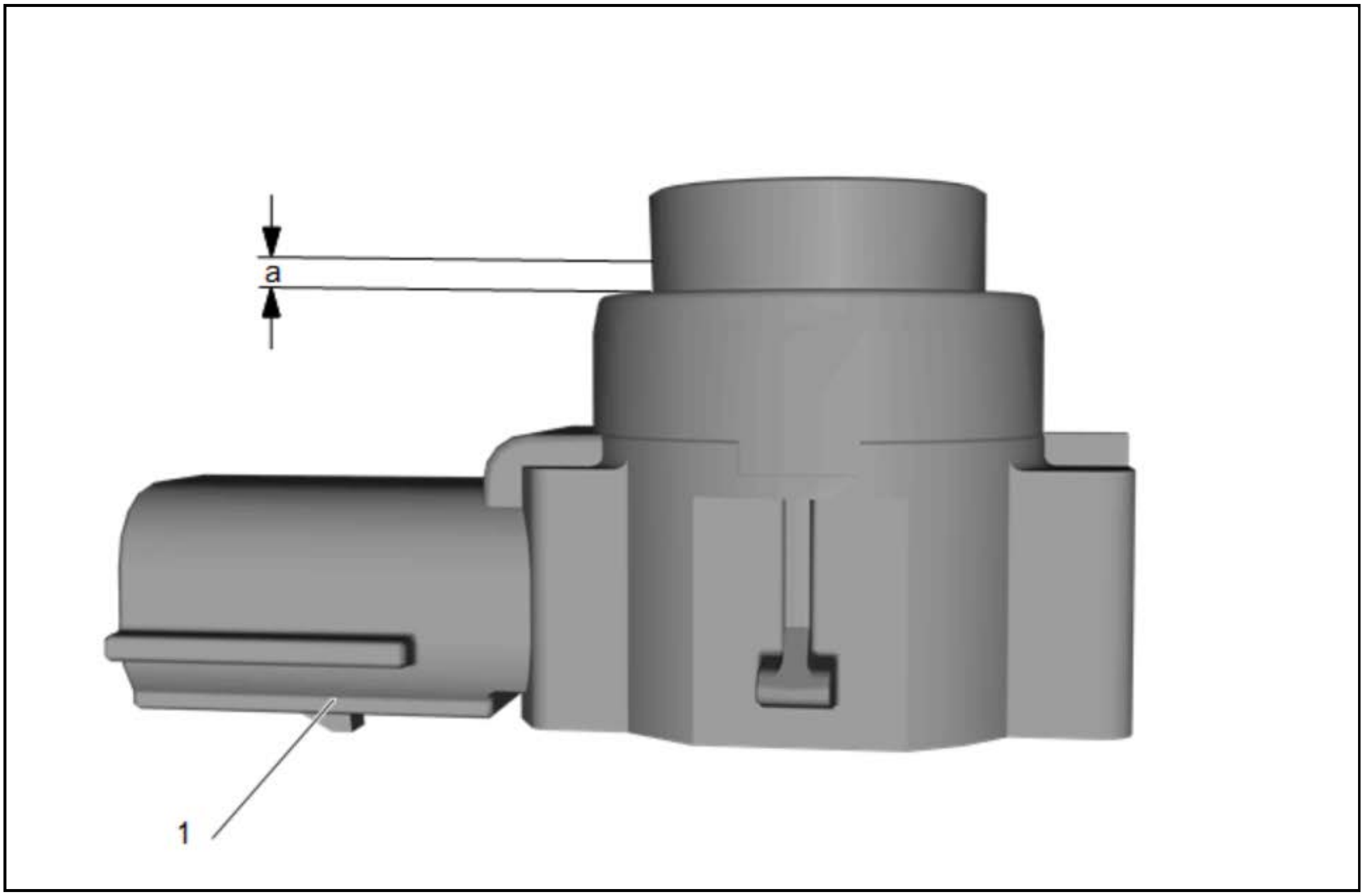
Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

13. Lift the locking tabs on the housing and remove the front parking assist alarm sensor (1).
14. Disconnect the electrical connector.



15. Parking Assist Alarm Sensor Ring (1) » Remove

Painting Procedure

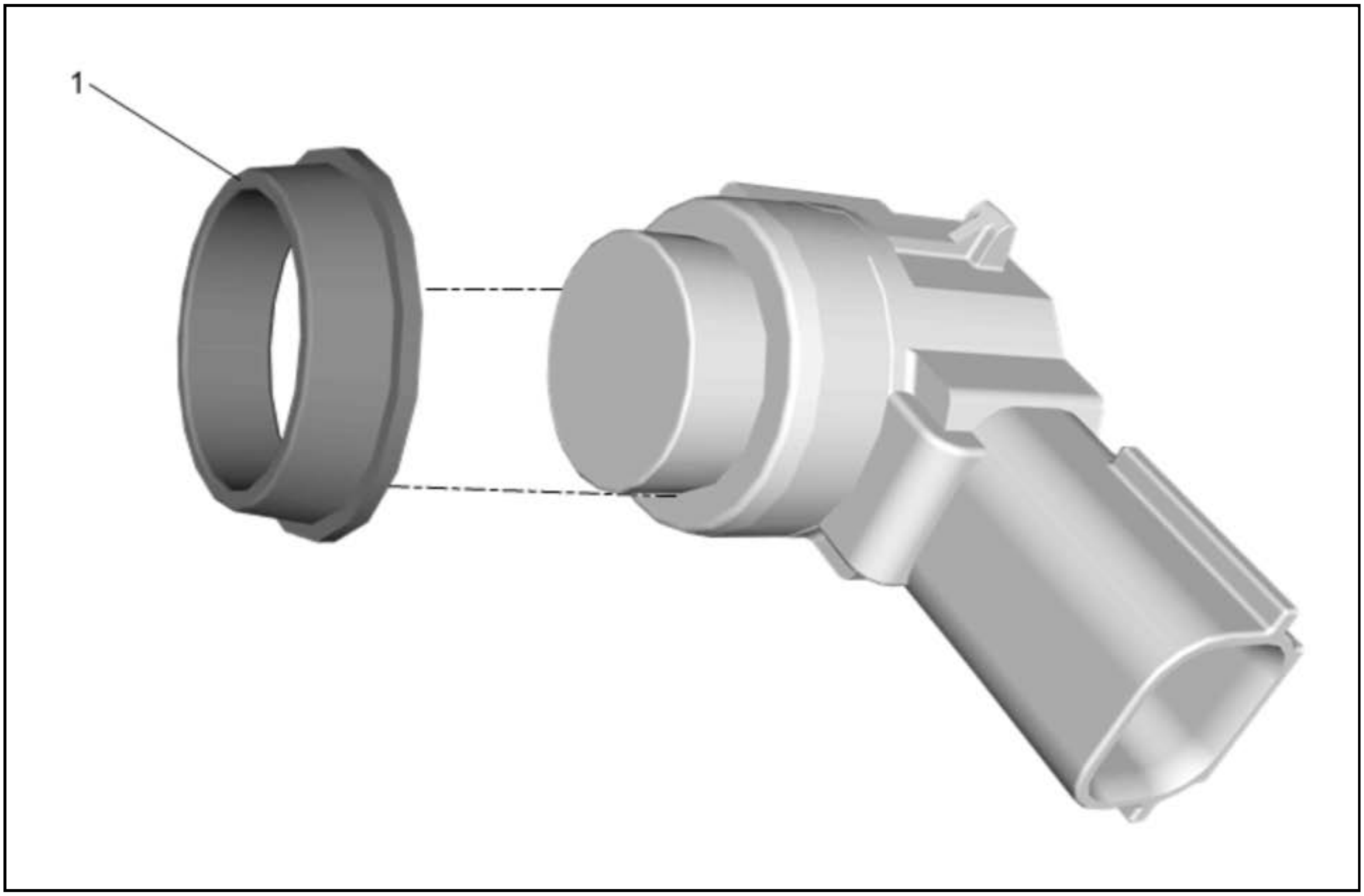


5001999

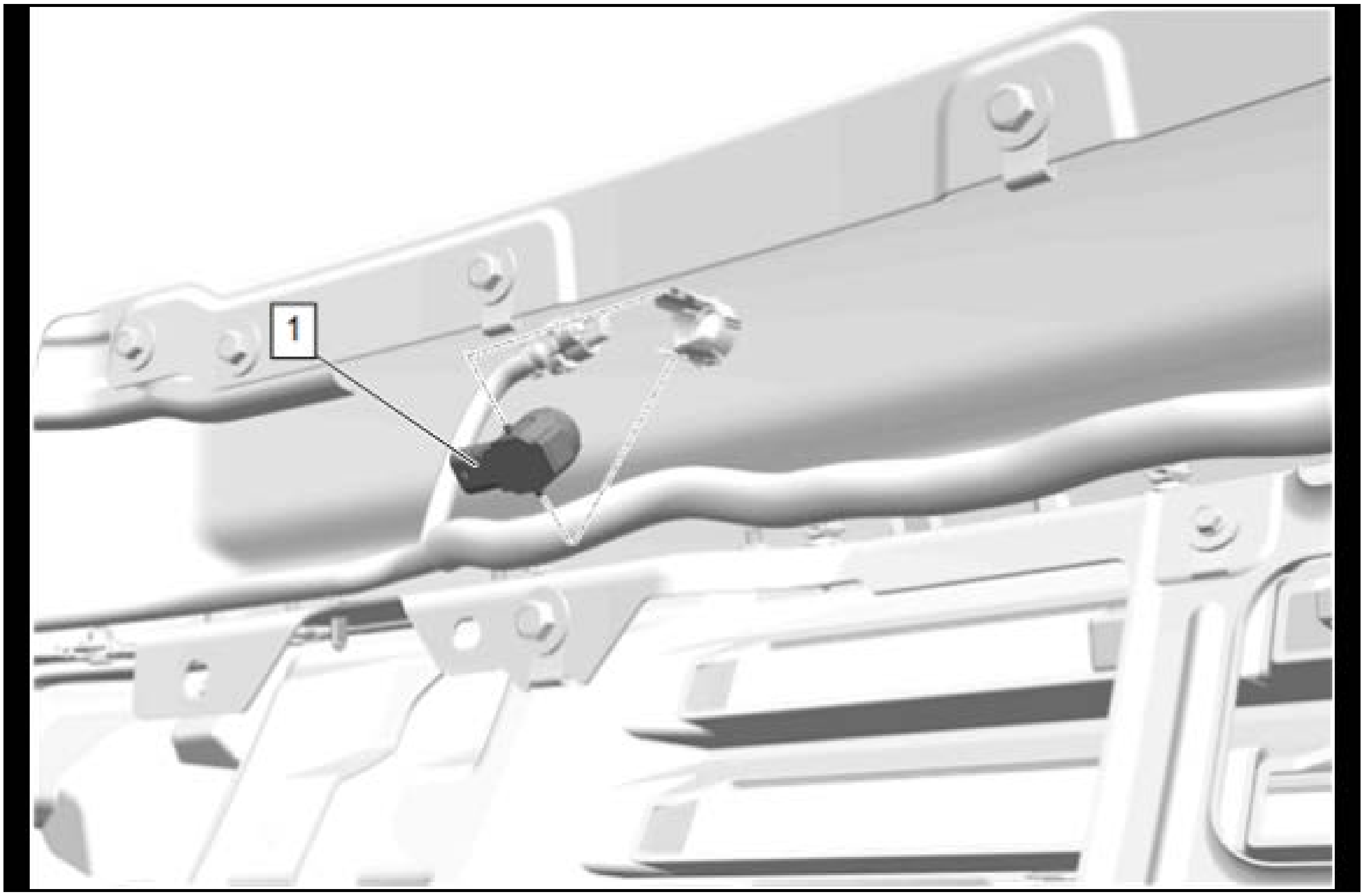
Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure

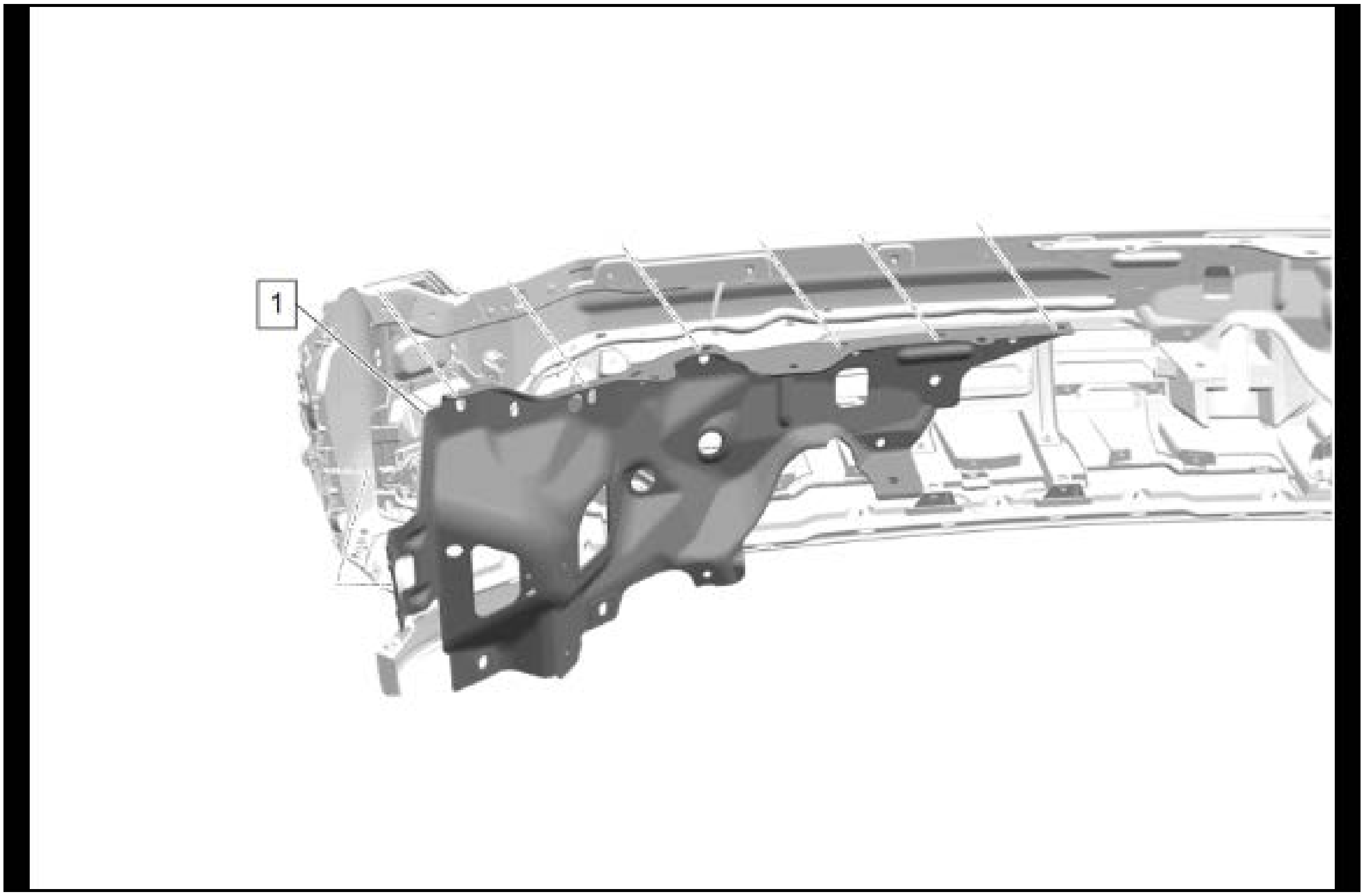


1. Parking Assist Alarm Sensor Ring (1) » Install



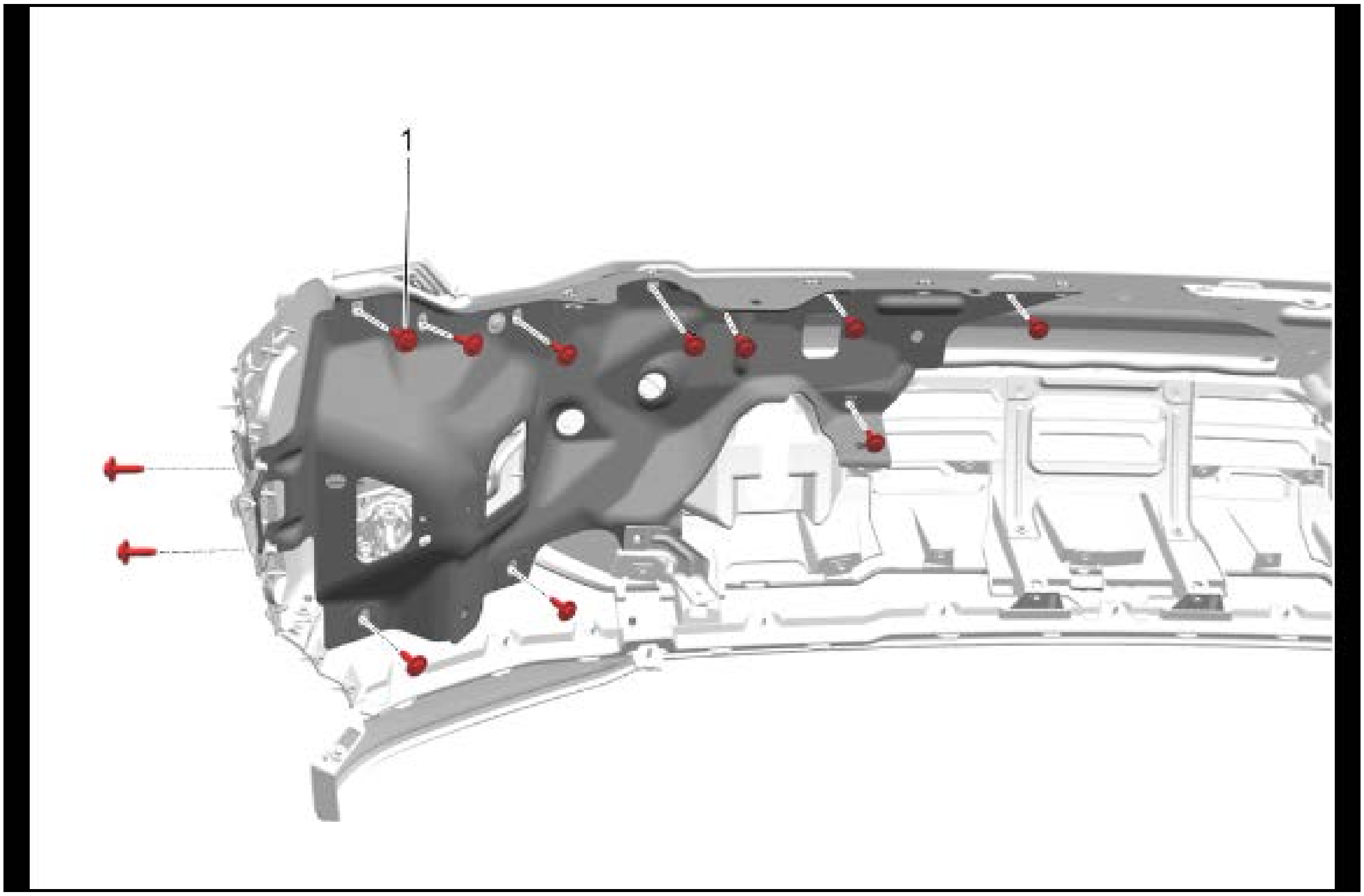
Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

2. Insert the front parking assist alarm sensor (1) into the housing.
3. Connect the electrical connector.



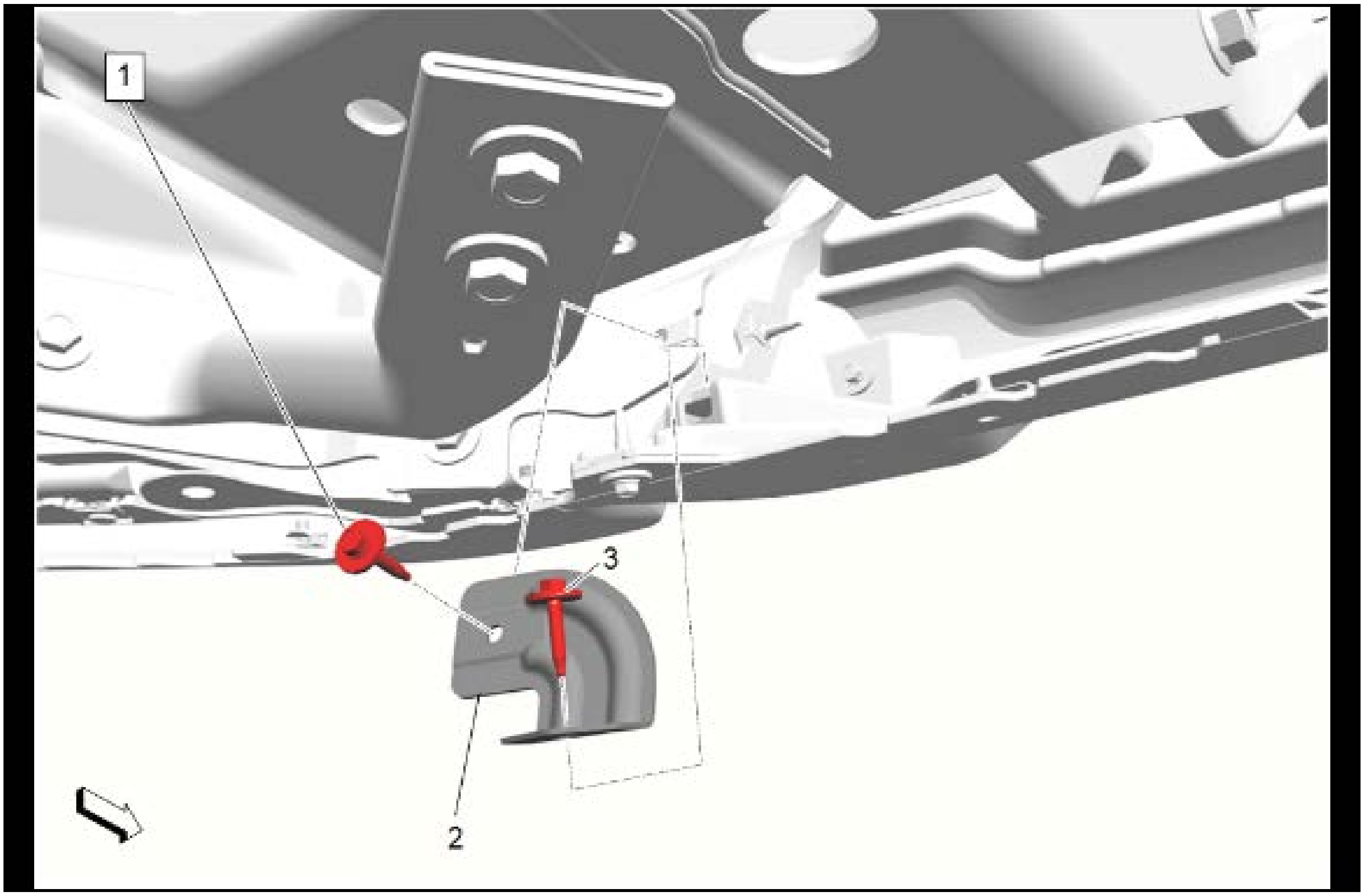
6215277

4. Front Bumper Impact Bar Bracket (1) » Install
5. Connect the wiring harness retainers as necessary.

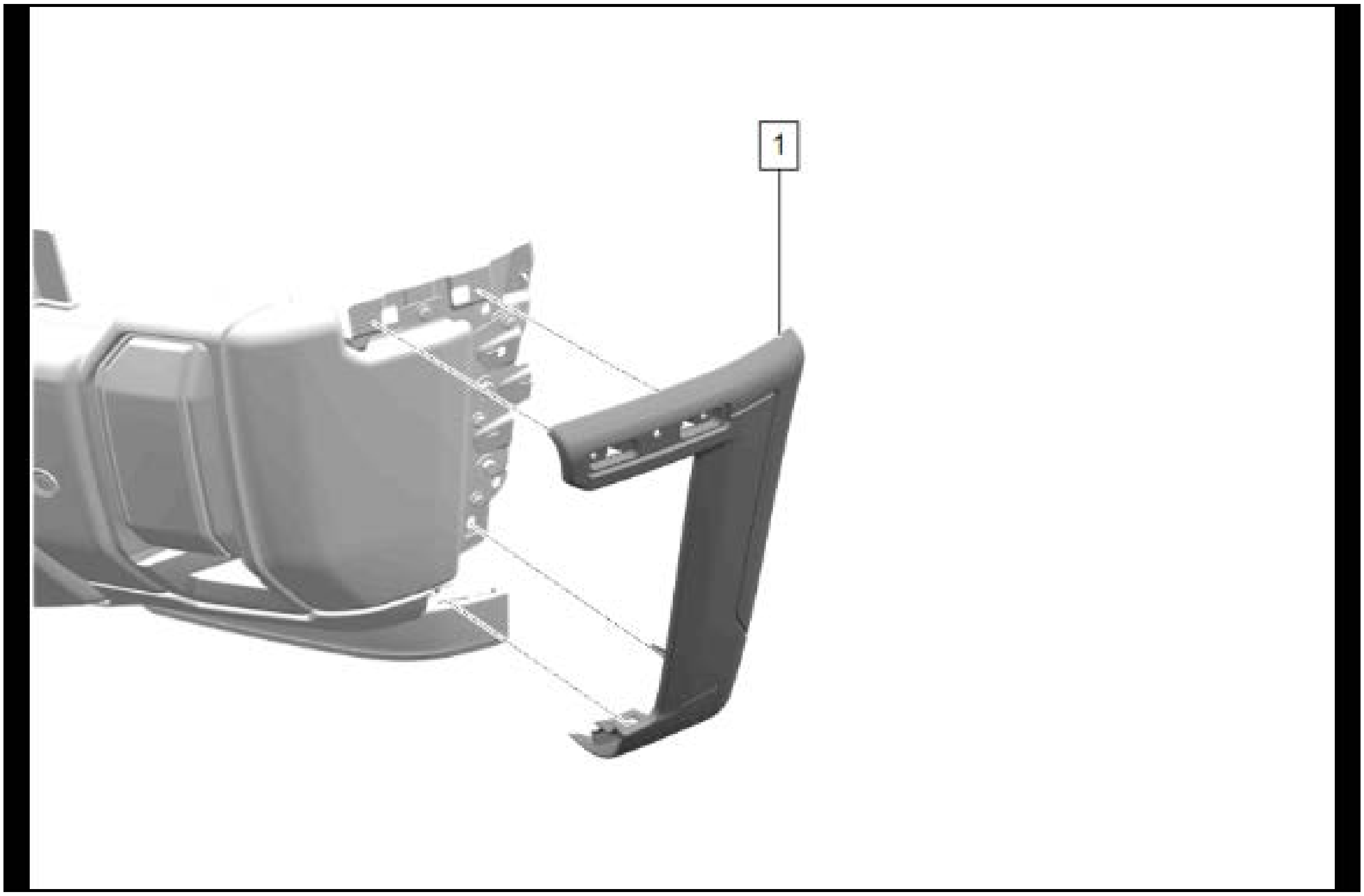


Caution: Refer to Fastener Caution.

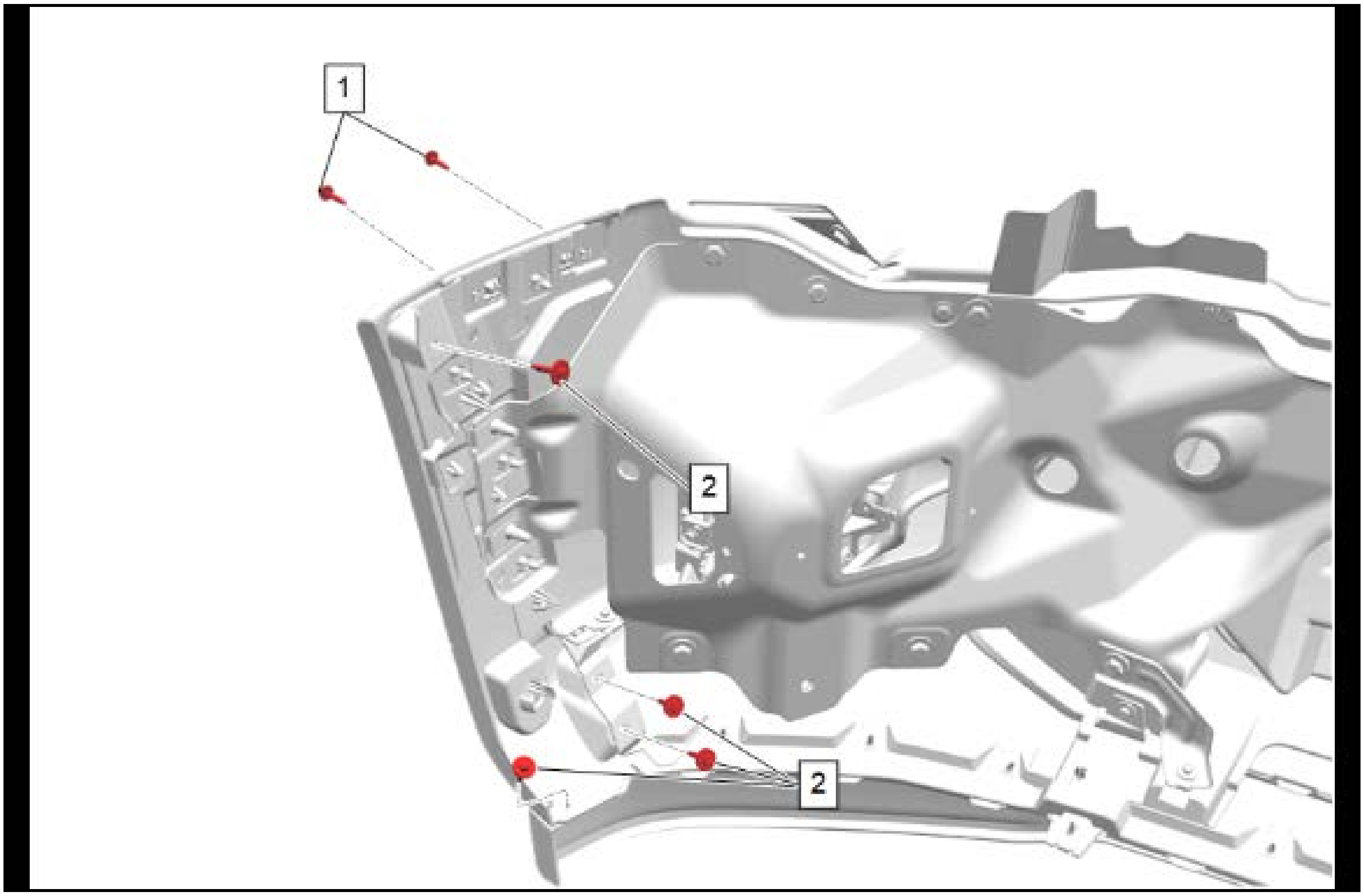
6. Front Bumper Impact Bar Bolt (1) » Install and tighten [12x]



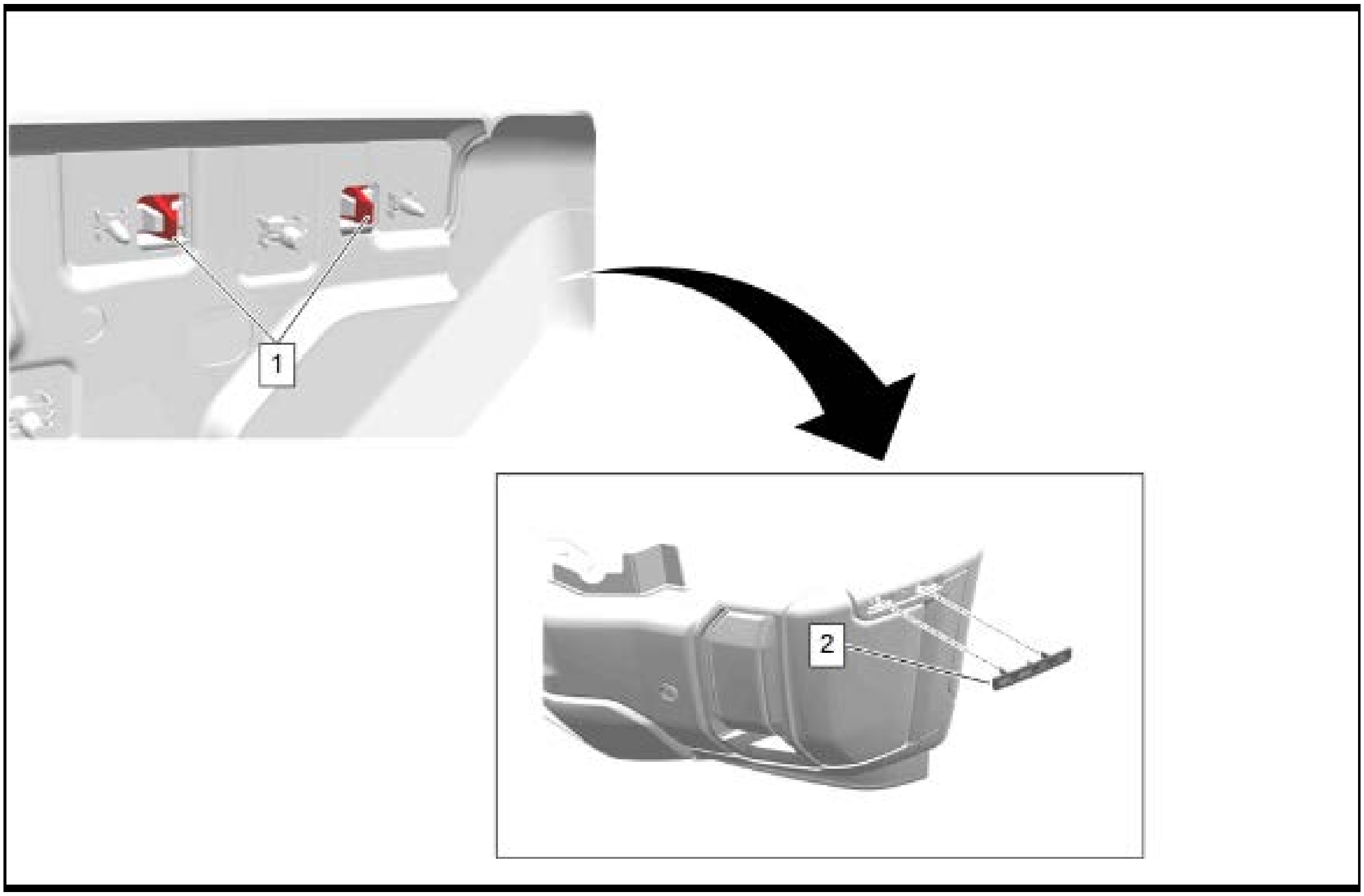
7. Front Bumper Fascia Outer Bracket (2) » Install
8. Front Bumper Fascia Bolt (3) » Install and tighten —
9. Front Bumper Lower Impact Bar Bolt (1) » Install and tighten —



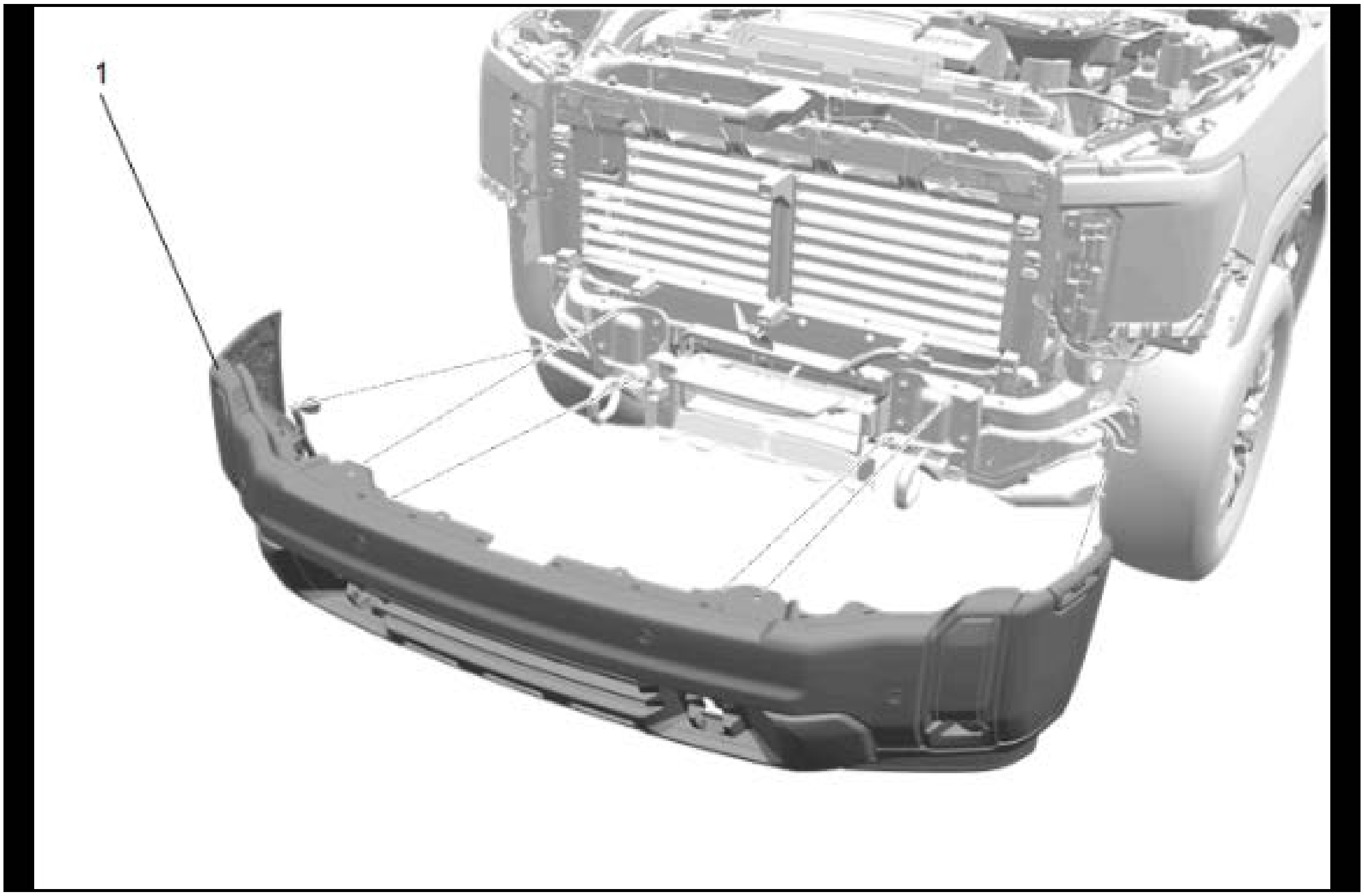
10. Front Bumper Fascia Molding (1) » Install



11. Front Fog Lamp Bolt (2) » Install and tighten [4x]
12. Front Bumper Fascia Bolt (1) » Install and tighten [2x]



13. Front Bumper Fascia Emblem (2) » Install



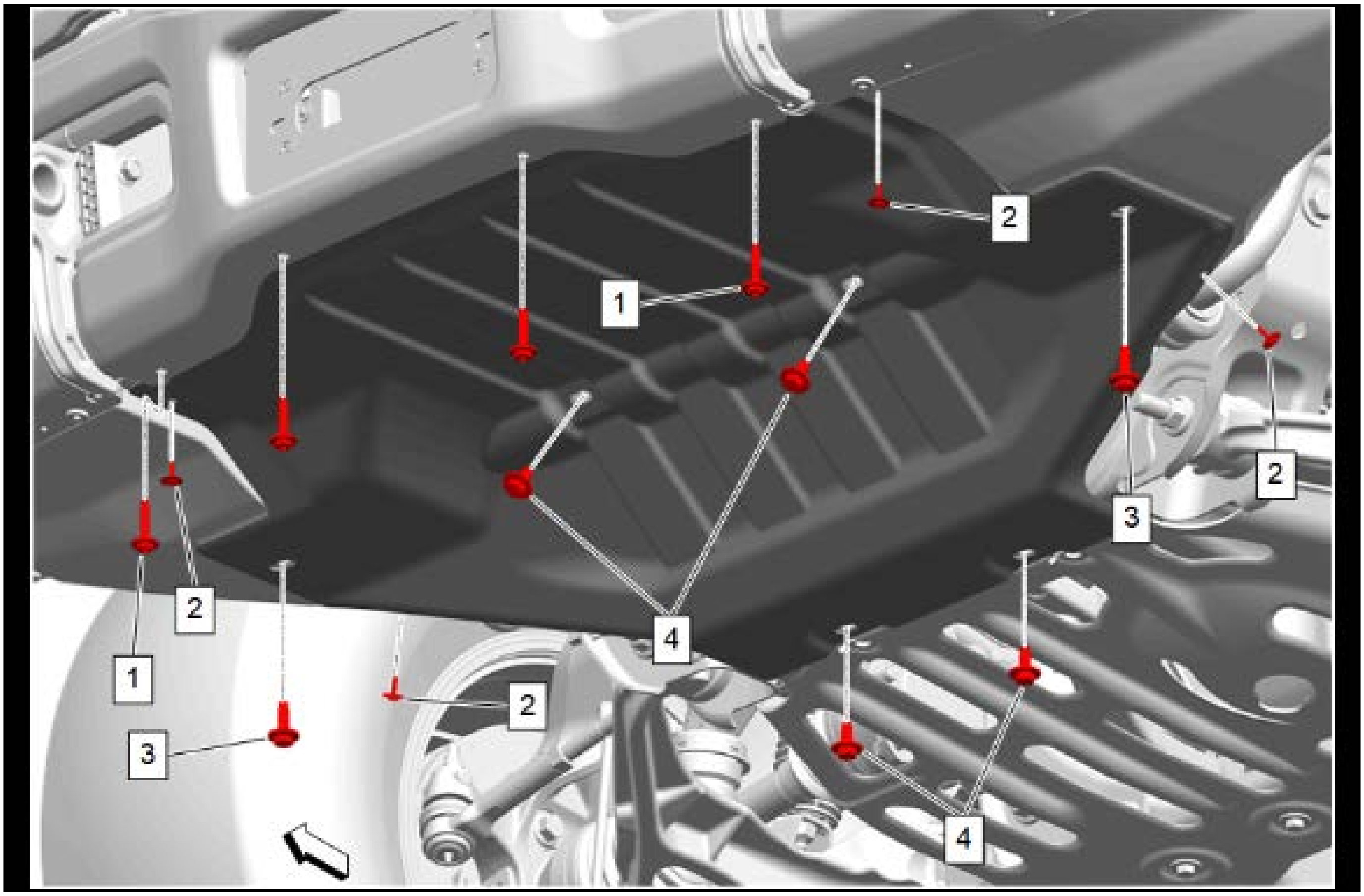
14. With the aid of an assistant, install the impact bar. (1)

Front Parking Assist Alarm Sensor Replacement

Object-ID=6288250 Owner=Hendrickson, Phil LMD=08-Mar-2023 LMB=Hendrickson, Phil

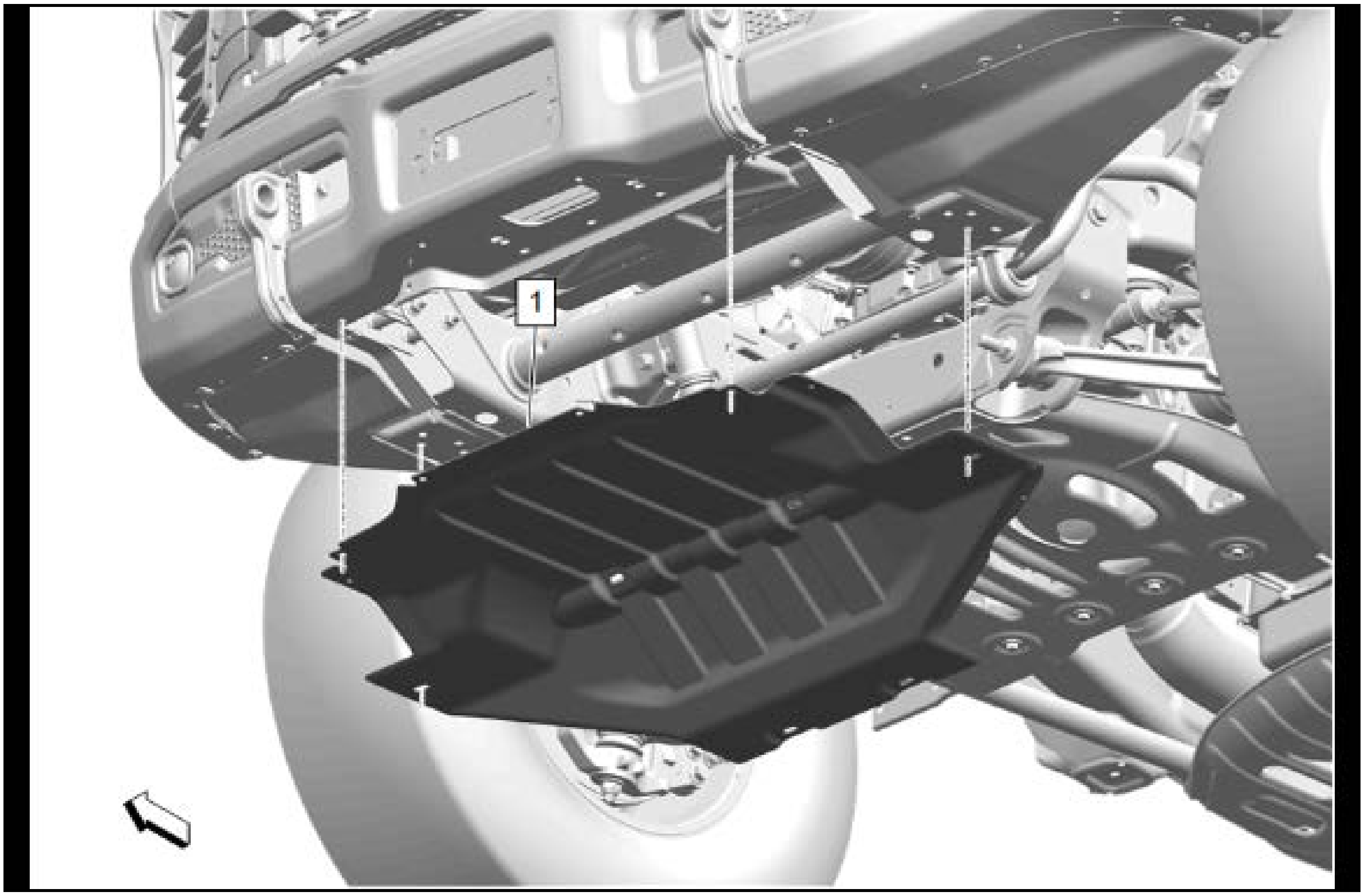
Removal Procedure

1. Raise and support the vehicle. —

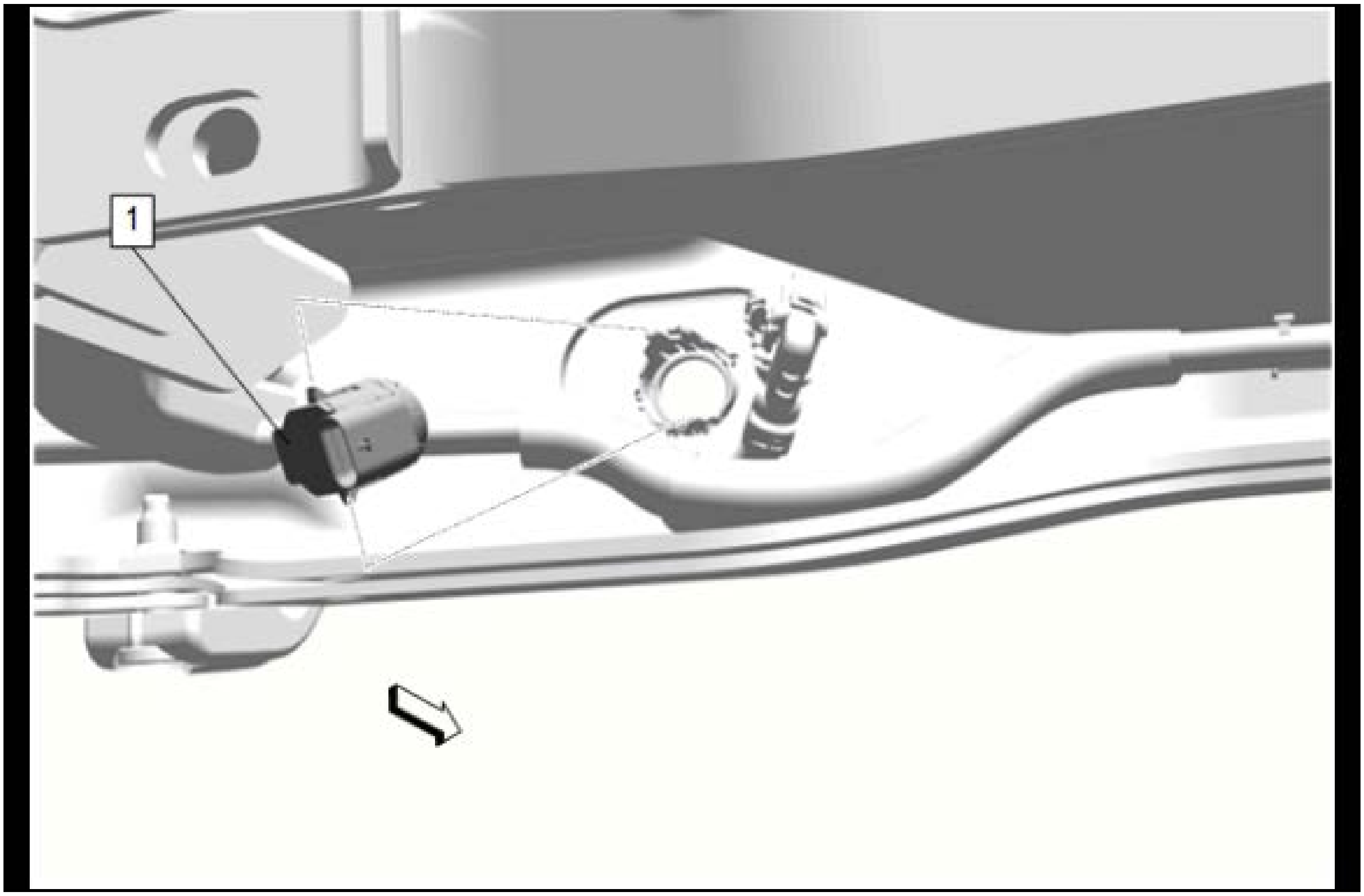


6214963

2. Underbody Splash Shield Bolt (1) » Remove [4x]
3. Front Bumper Fascia Bolt (2) » Remove [4x]
4. Front Bumper Impact Bar Brace Bolt (3) » Remove [2x]
5. Underbody Splash Shield Bolt (4) » Remove [4x]



6. Underbody Splash Shield (1) » Remove

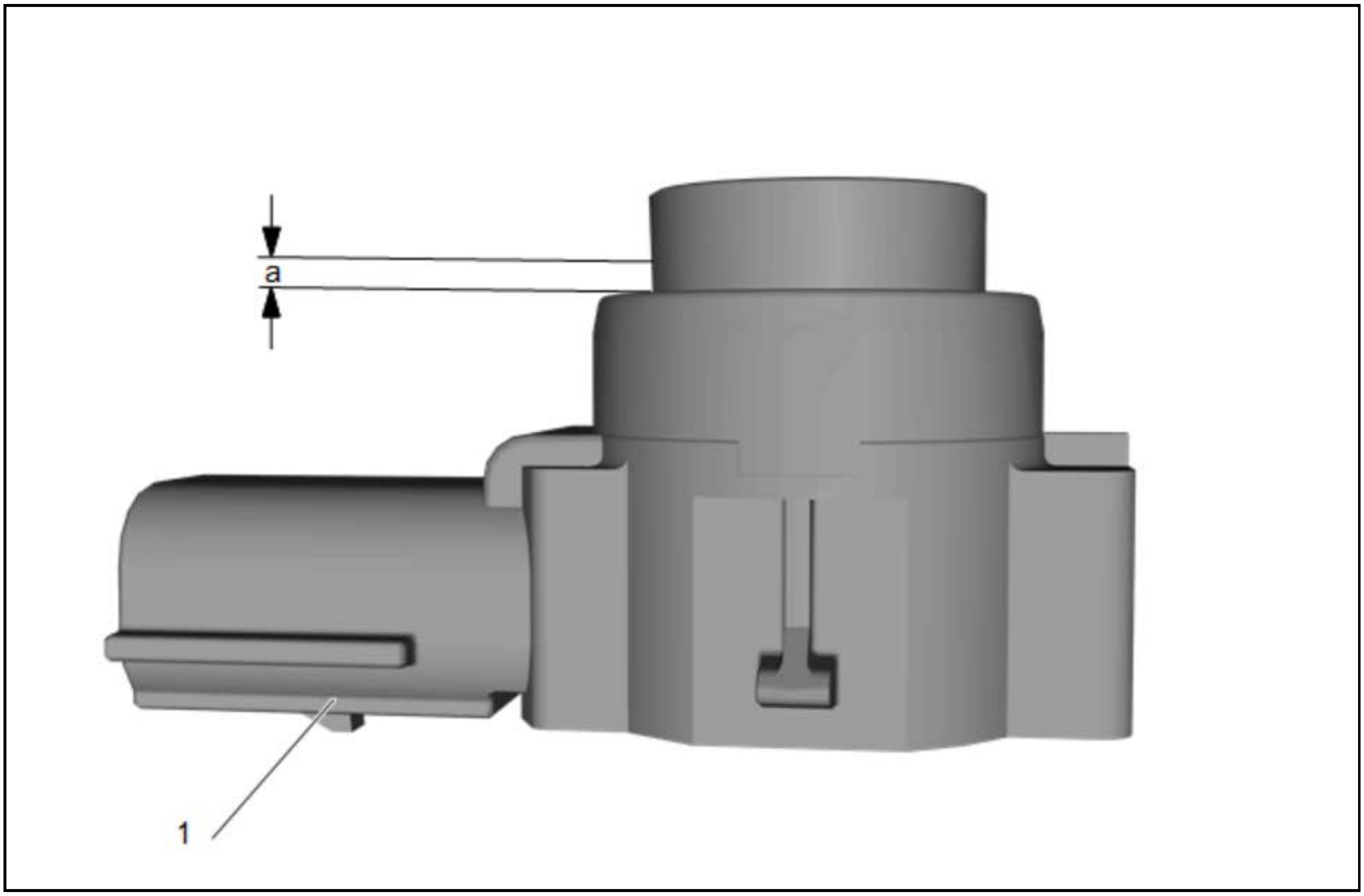


6288242

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

7. Lift the locking tabs on the housing and remove the front parking assist alarm sensor (1).
8. Disconnect the electrical connector.

Painting Procedure

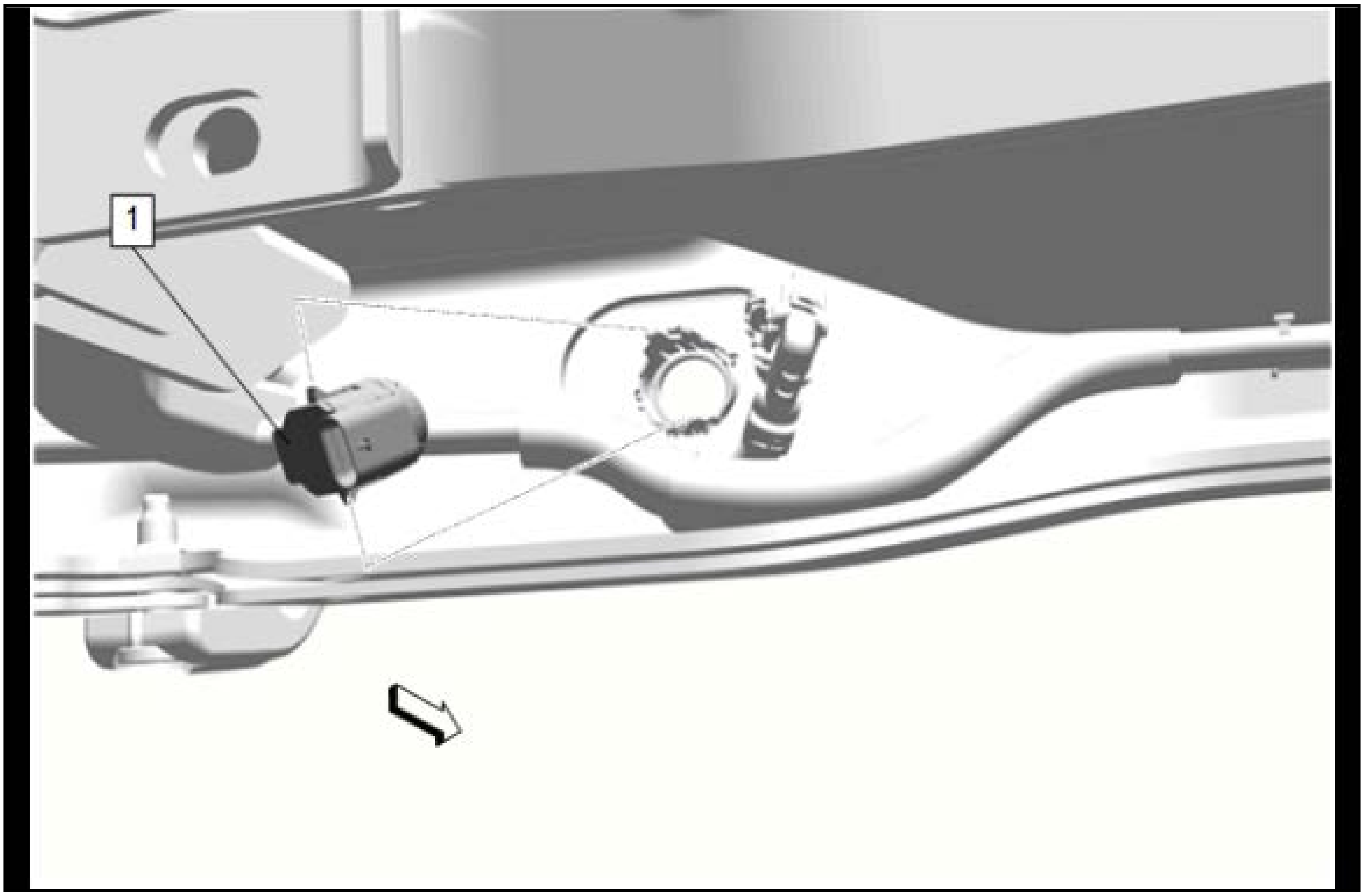


5001999

Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

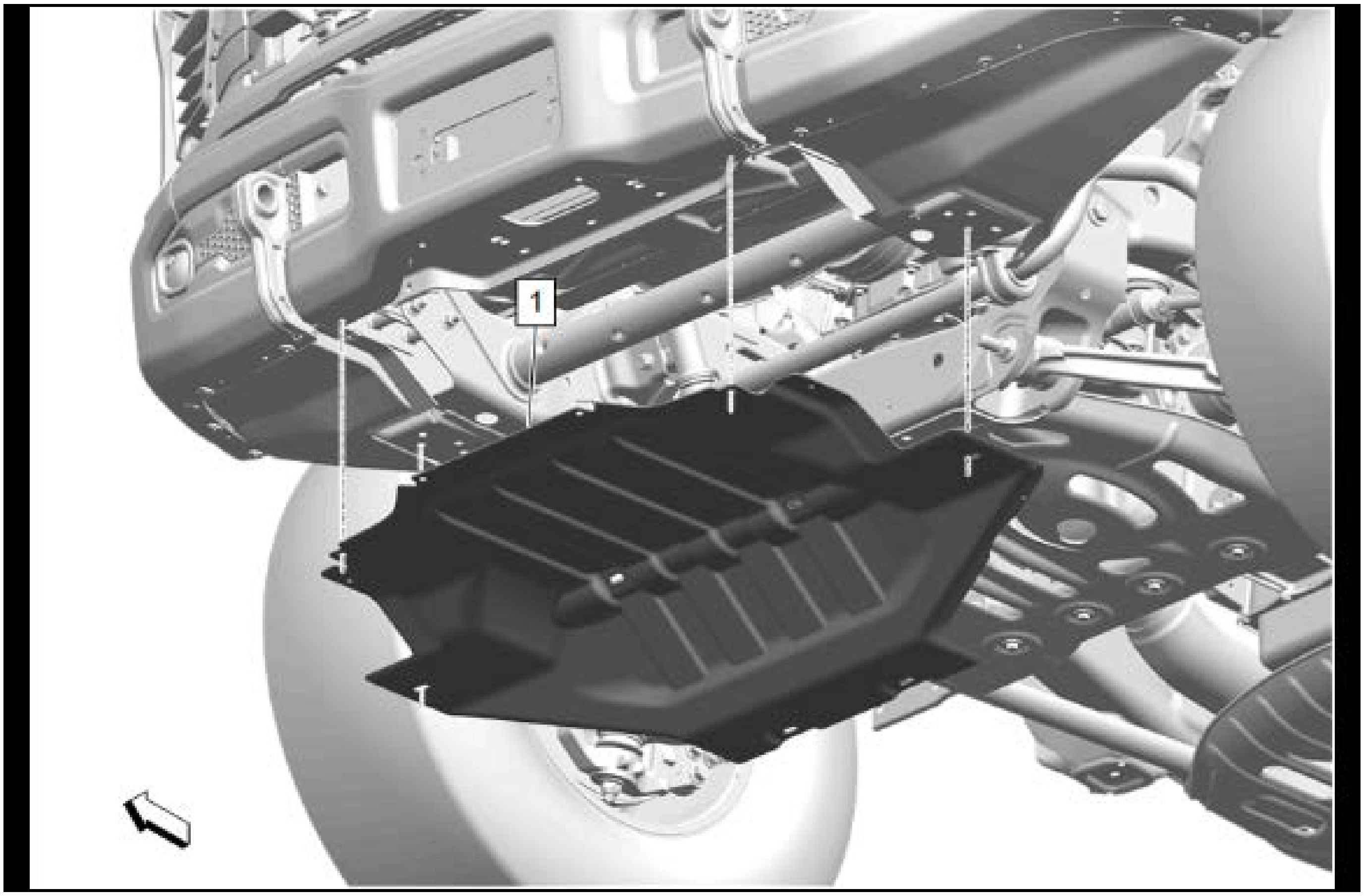
Installation Procedure



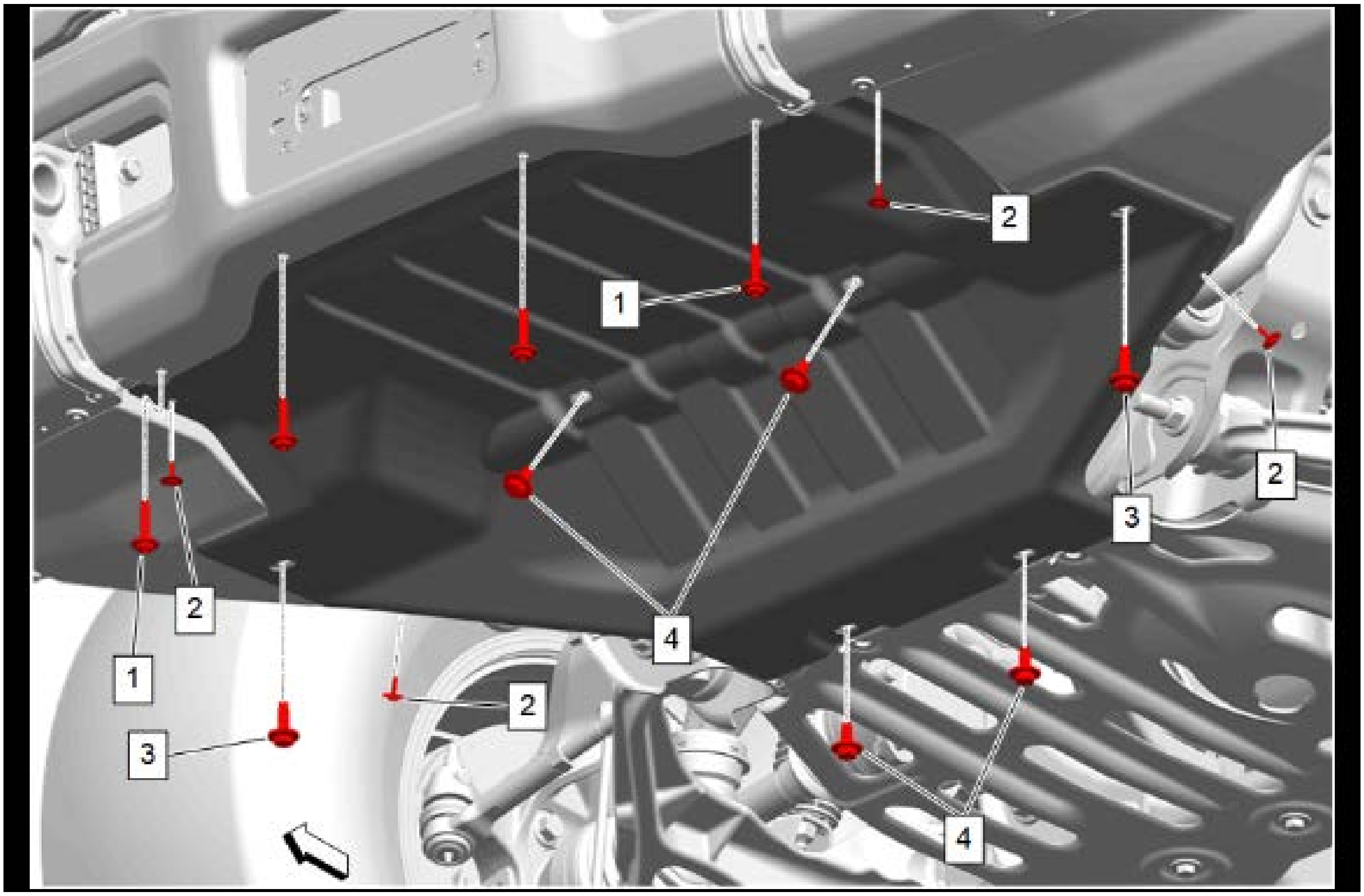
6288242

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

1. Insert the front parking assist alarm sensor (1) into the housing.
2. Connect the electrical connector.



3. Underbody Splash Shield (1) » Install



6214963

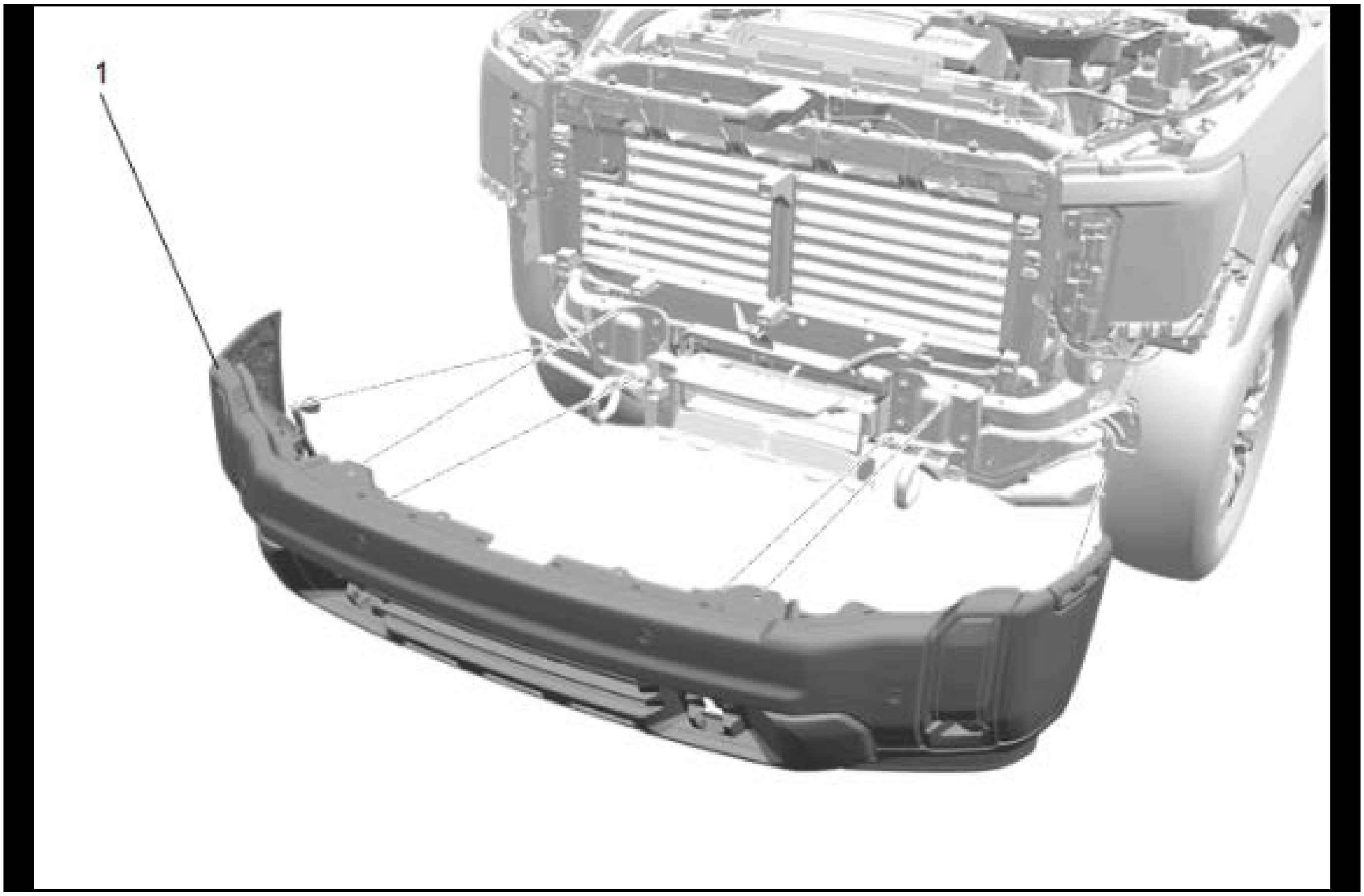
Caution: Refer to Fastener Caution

4. Underbody Splash Shield Bolt (4) » Install and tighten [4x]
5. Front Bumper Impact Bar Brace Bolt (3) » Install and tighten [2x]
6. Front Bumper Fascia Bolt (2) » Install and tighten [4x]
7. Underbody Splash Shield Bolt (1) » Install and tighten [4x]
8. Remove the support and lower the vehicle.

Front Parking Assist Alarm Sensor Bracket Replacement

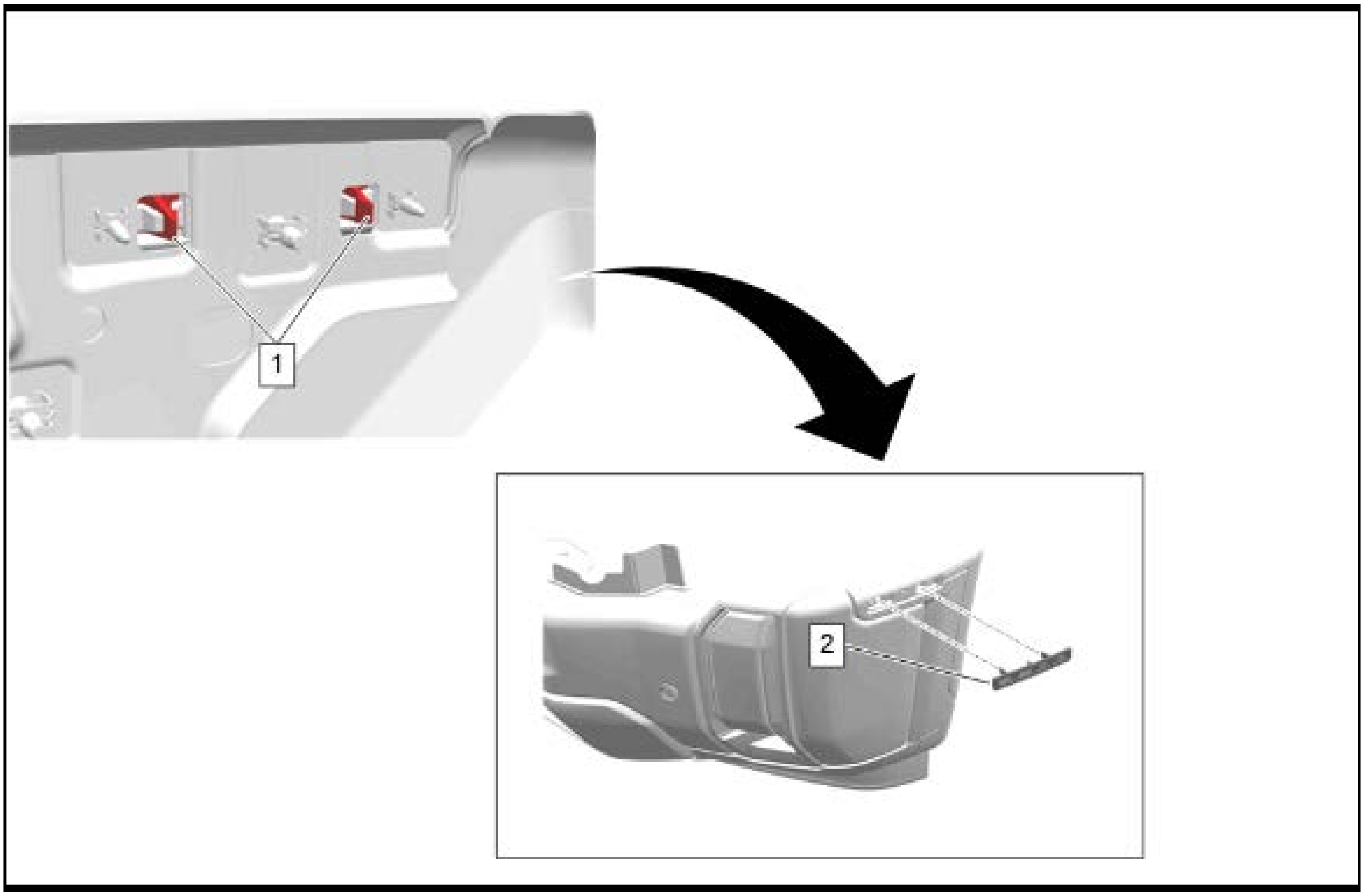
Object-ID=6287147 Owner=Hendrickson, Phil LMD=05-Apr-2023 LMB=Gonzales, Isaiah

Removal Procedure

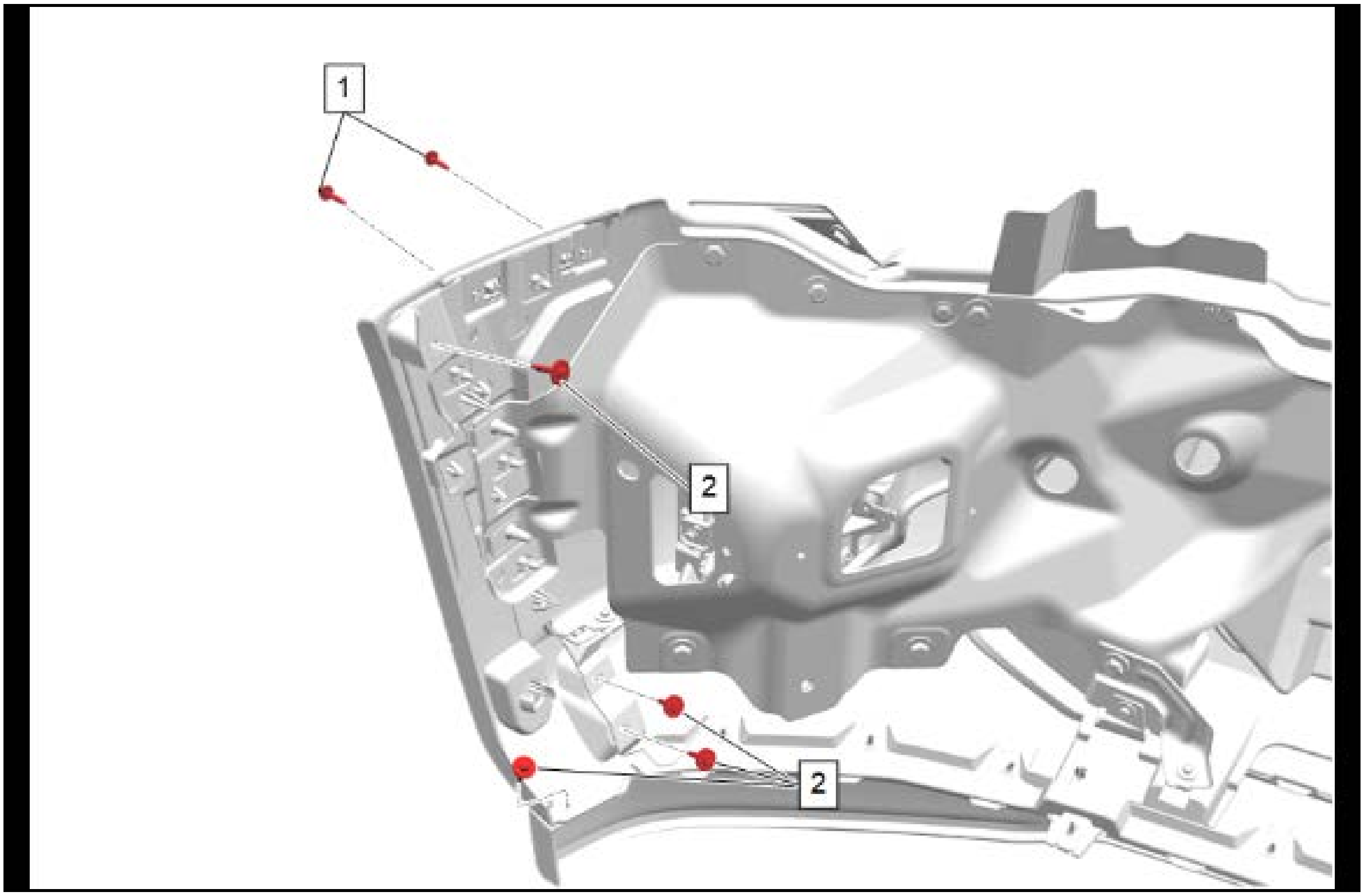


6259437

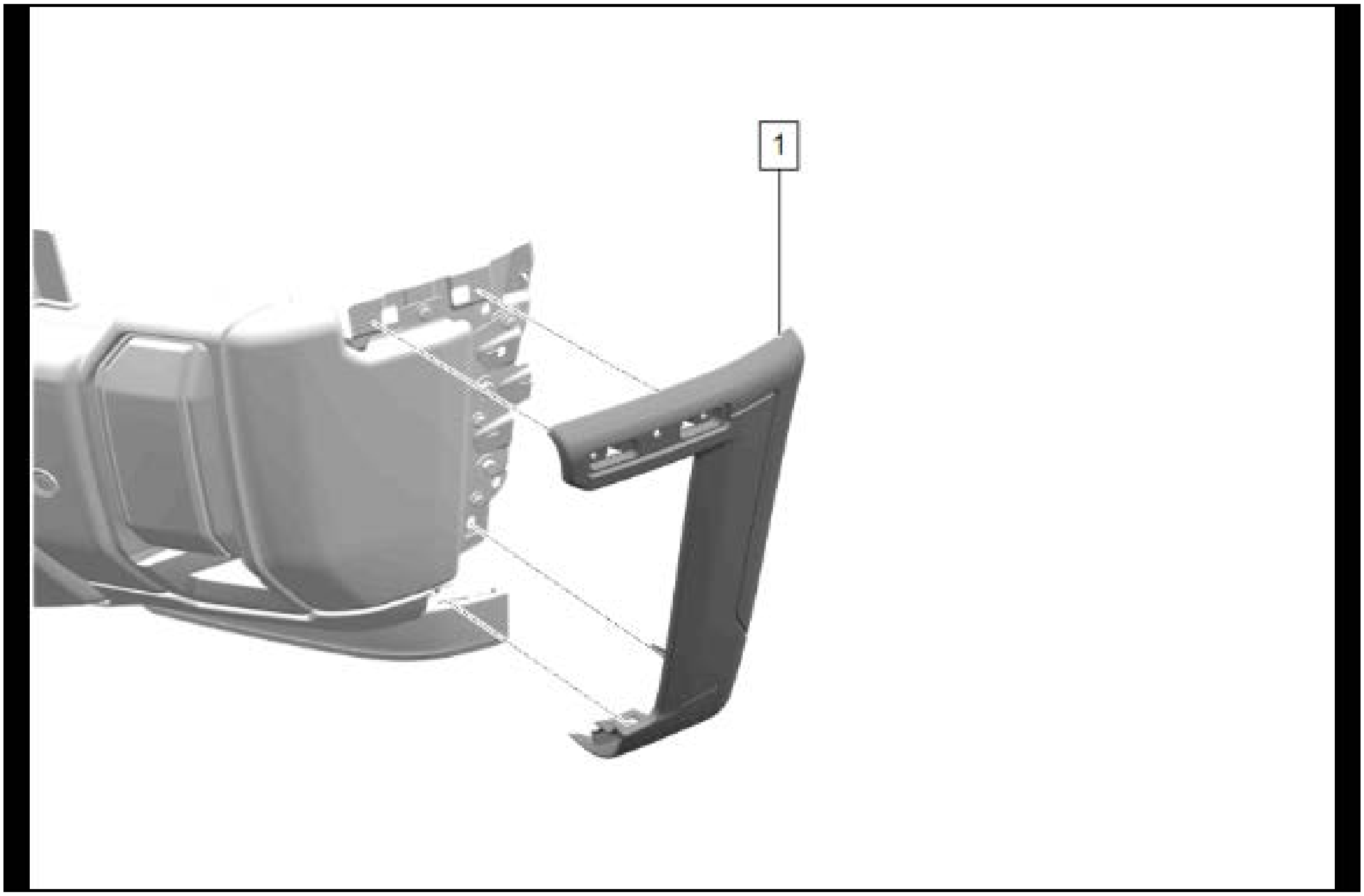
1. With the aid of an assistant, remove the impact bar. (1)



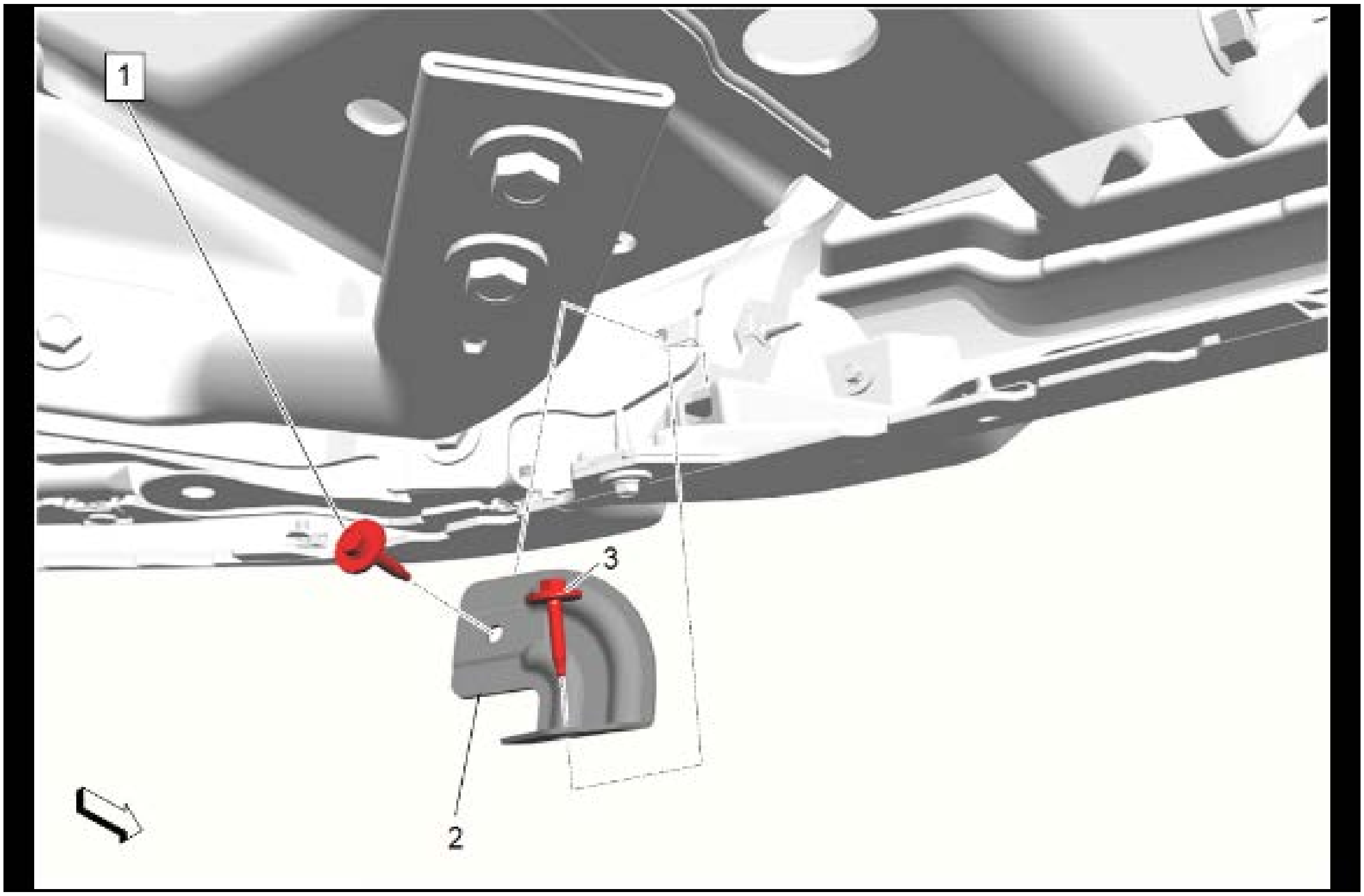
2. Using a suitable plastic trim tool, release the retaining tabs. (1)
3. Front Bumper Fascia Emblem (2) » Remove



4. Front Fog Lamp Bolt (1) » Remove [2x]
5. Front Bumper Fascia Bolt (2) » Remove [4x]

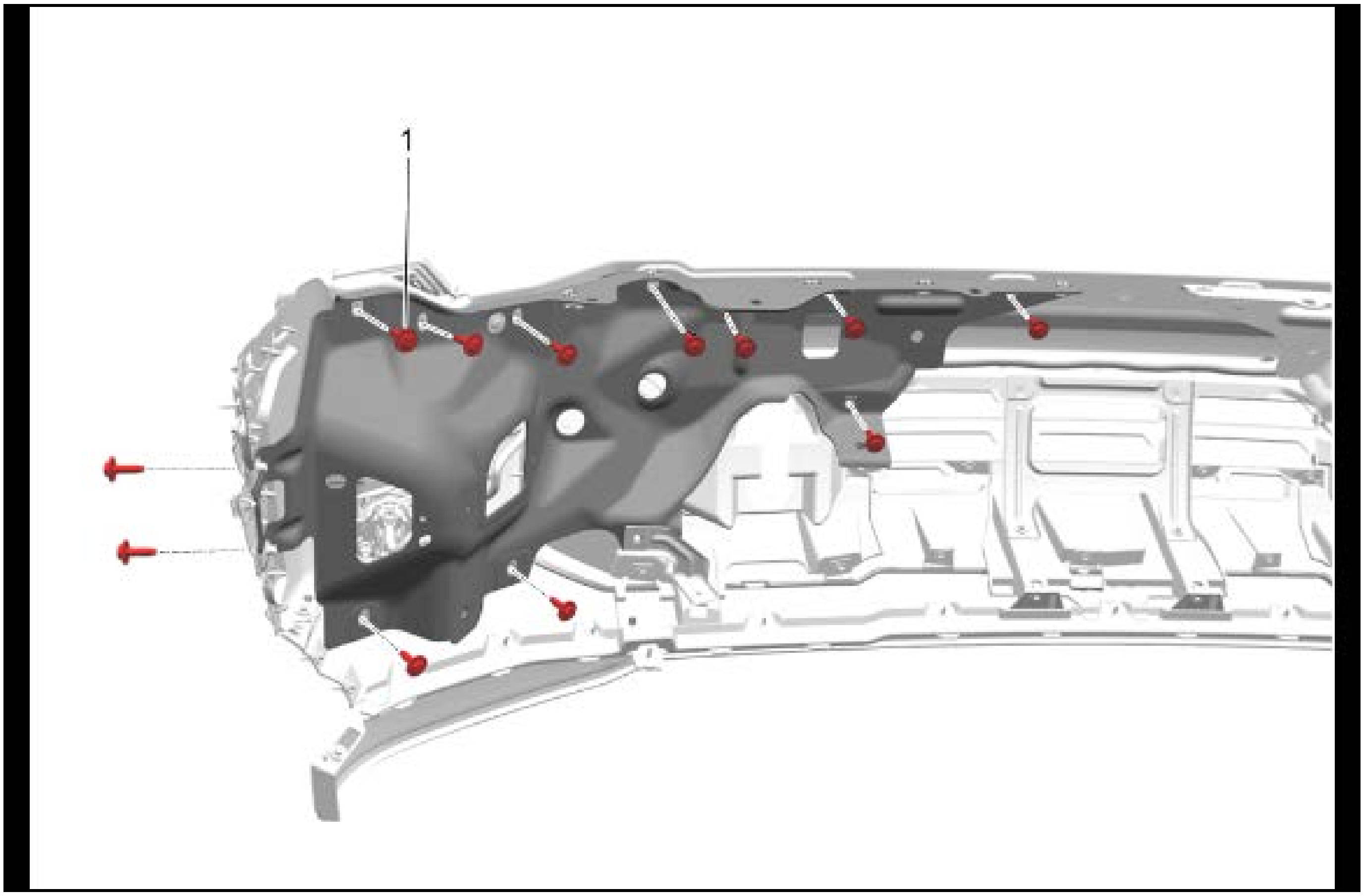


6. Front Bumper Fascia Molding (1) » Remove



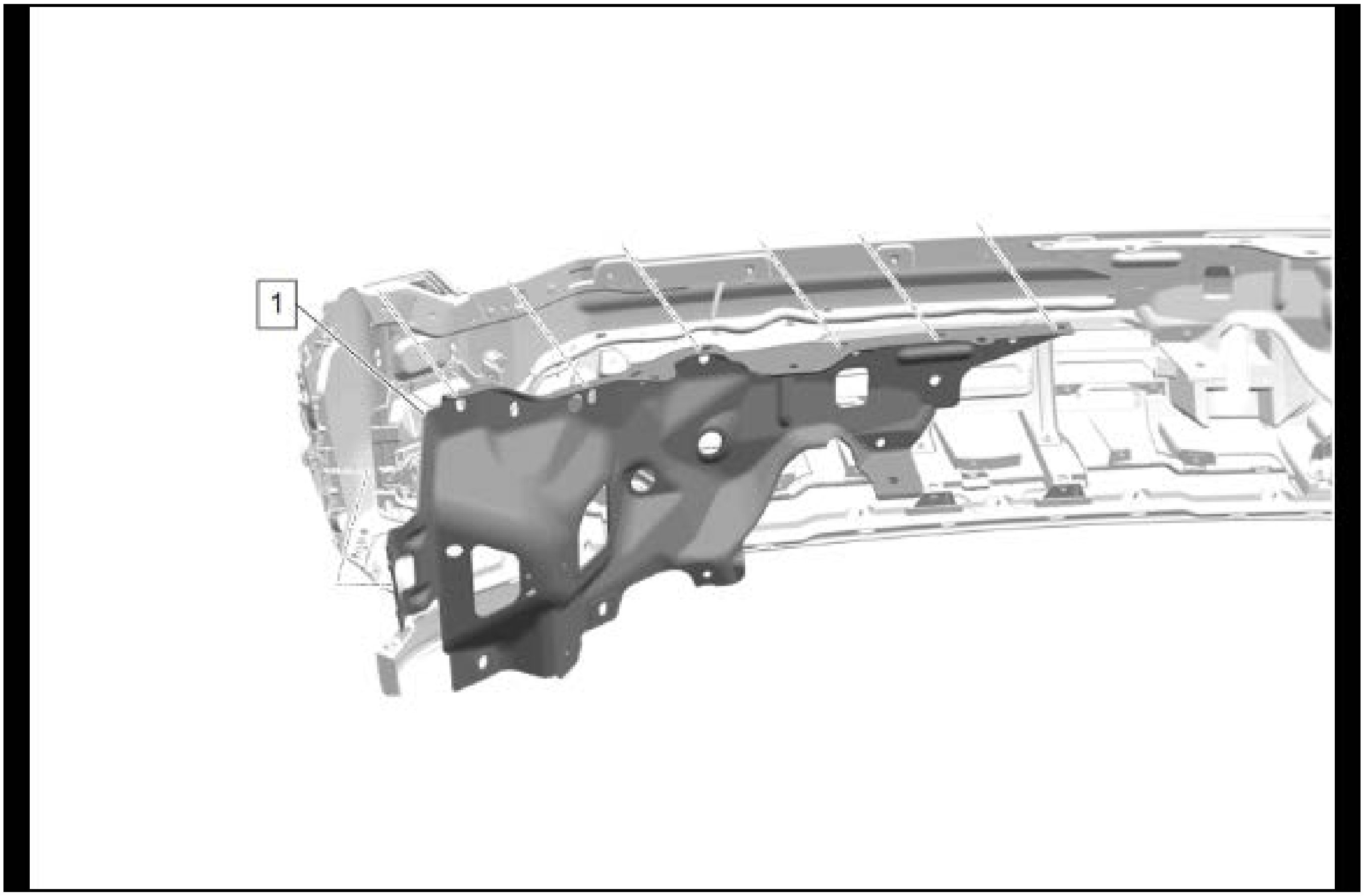
6196072

7. Front Bumper Lower Impact Bar Bolt (1) » Remove
8. Front Bumper Fascia Bolt (3) » Remove
9. Front Bumper Fascia Outer Bracket (2) » Remove



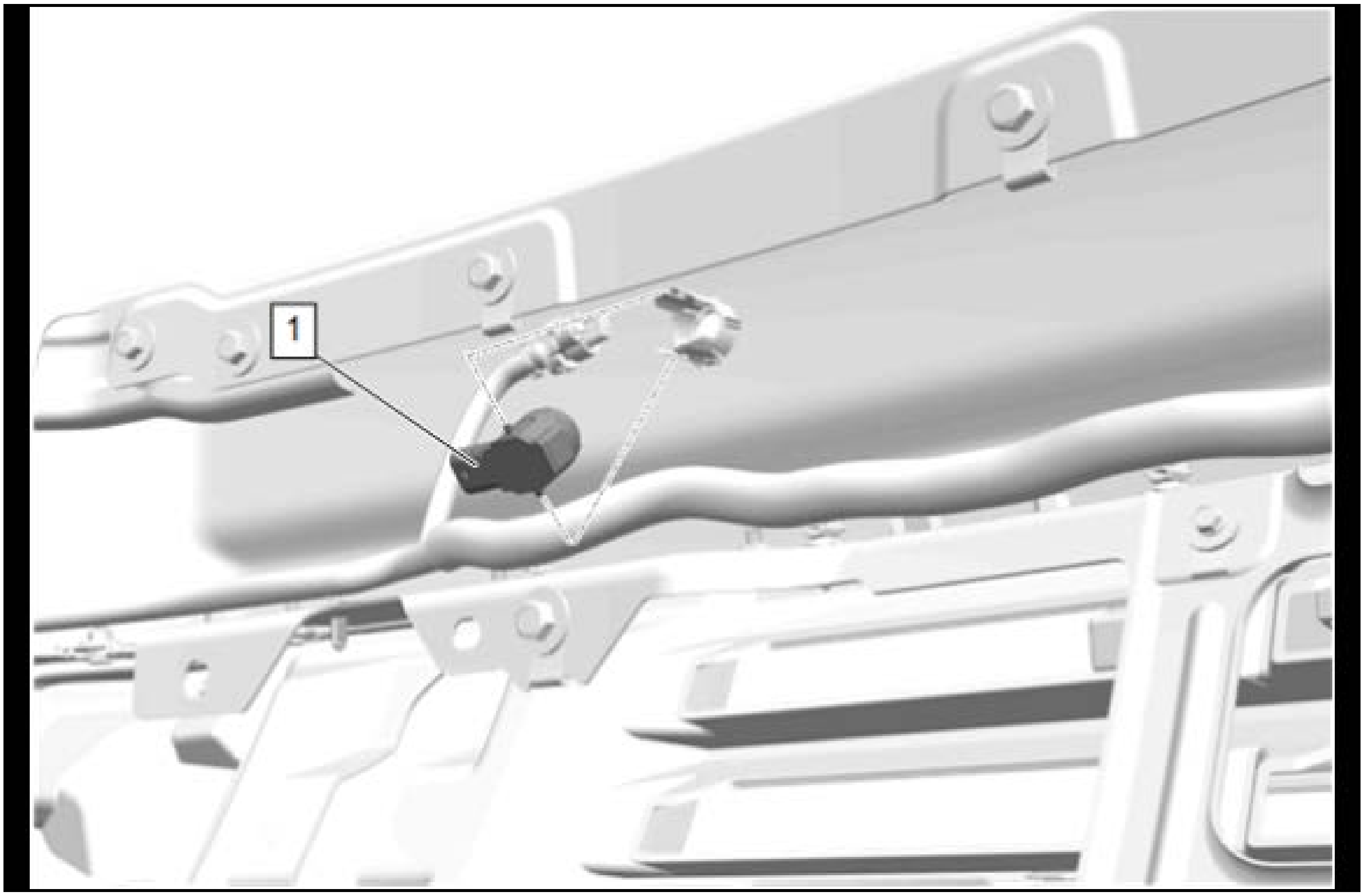
6302308

10. Front Bumper Impact Bar Bolt (1) » Remove [12x]



6215277

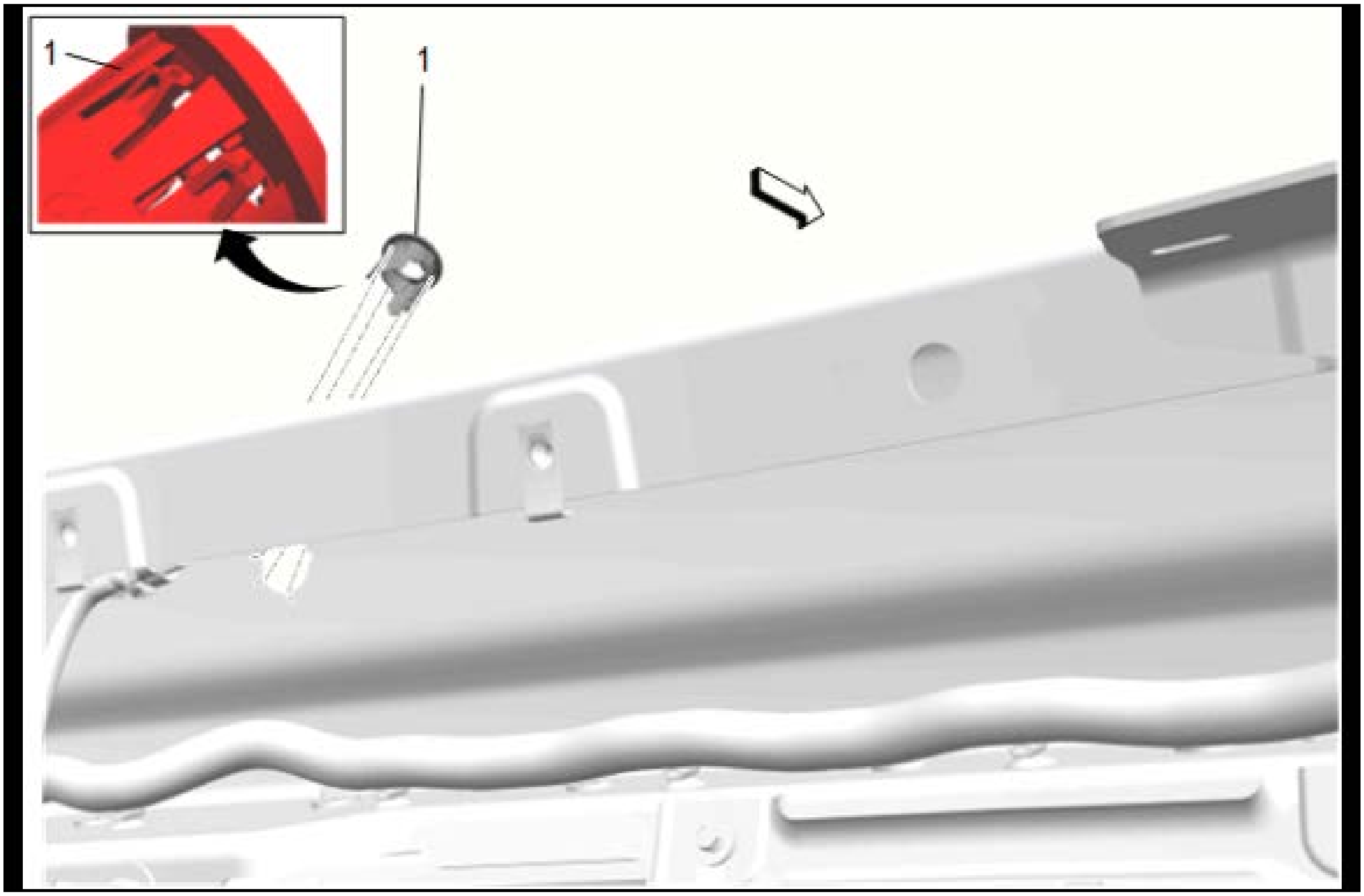
11. Disconnect the wiring harness retainers.
12. Front Bumper Impact Bar Bracket (1) » Remove



6287113

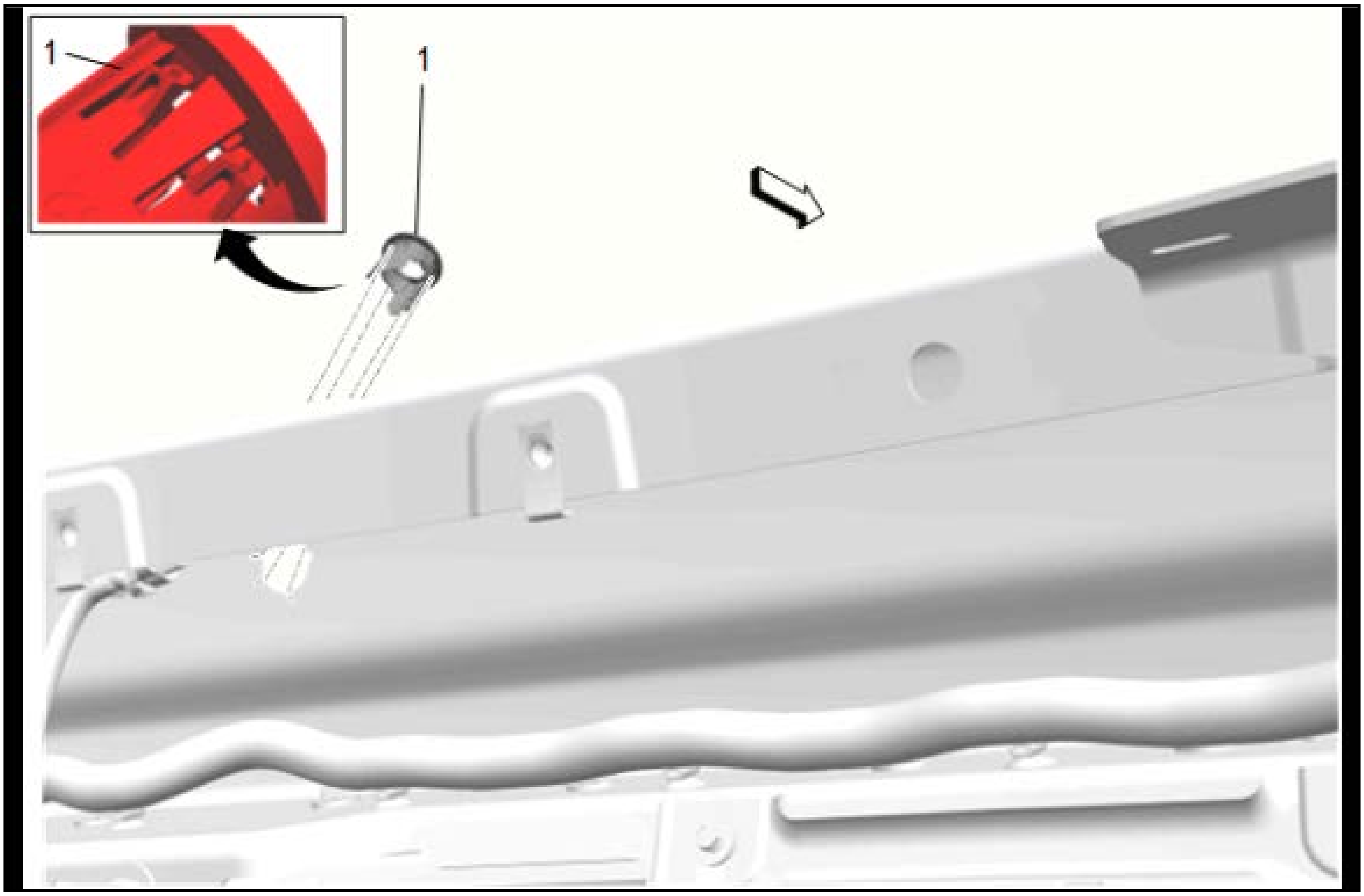
Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

13. Lift the locking tabs on the housing and remove the front parking assist alarm sensor (1).
14. Disconnect the electrical connector.

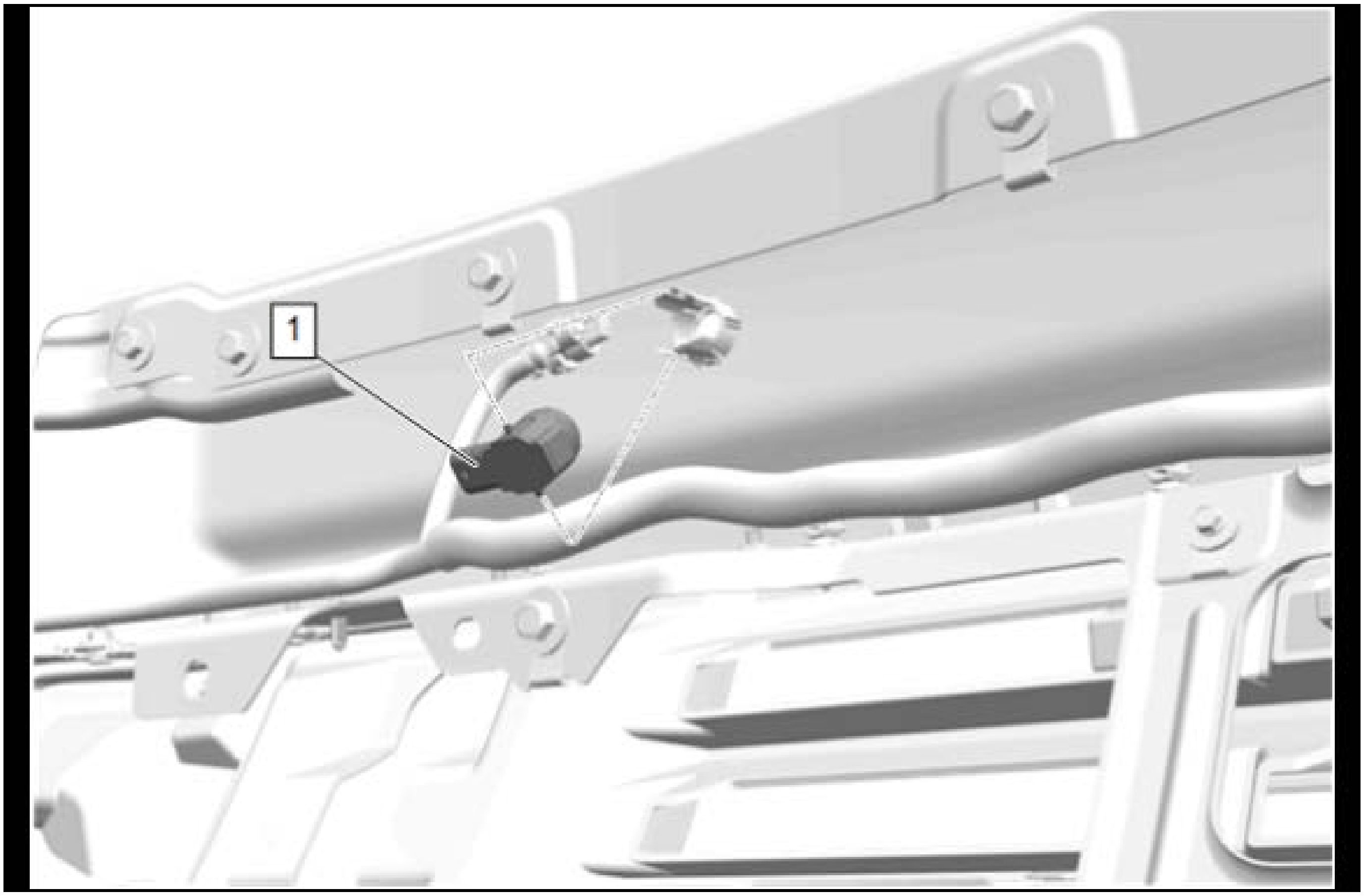


15. Using a flat-bladed plastic trim tool, release the retaining tabs.
16. Front Parking Assist Alarm Sensor Bracket (1) » Remove

Installation Procedure



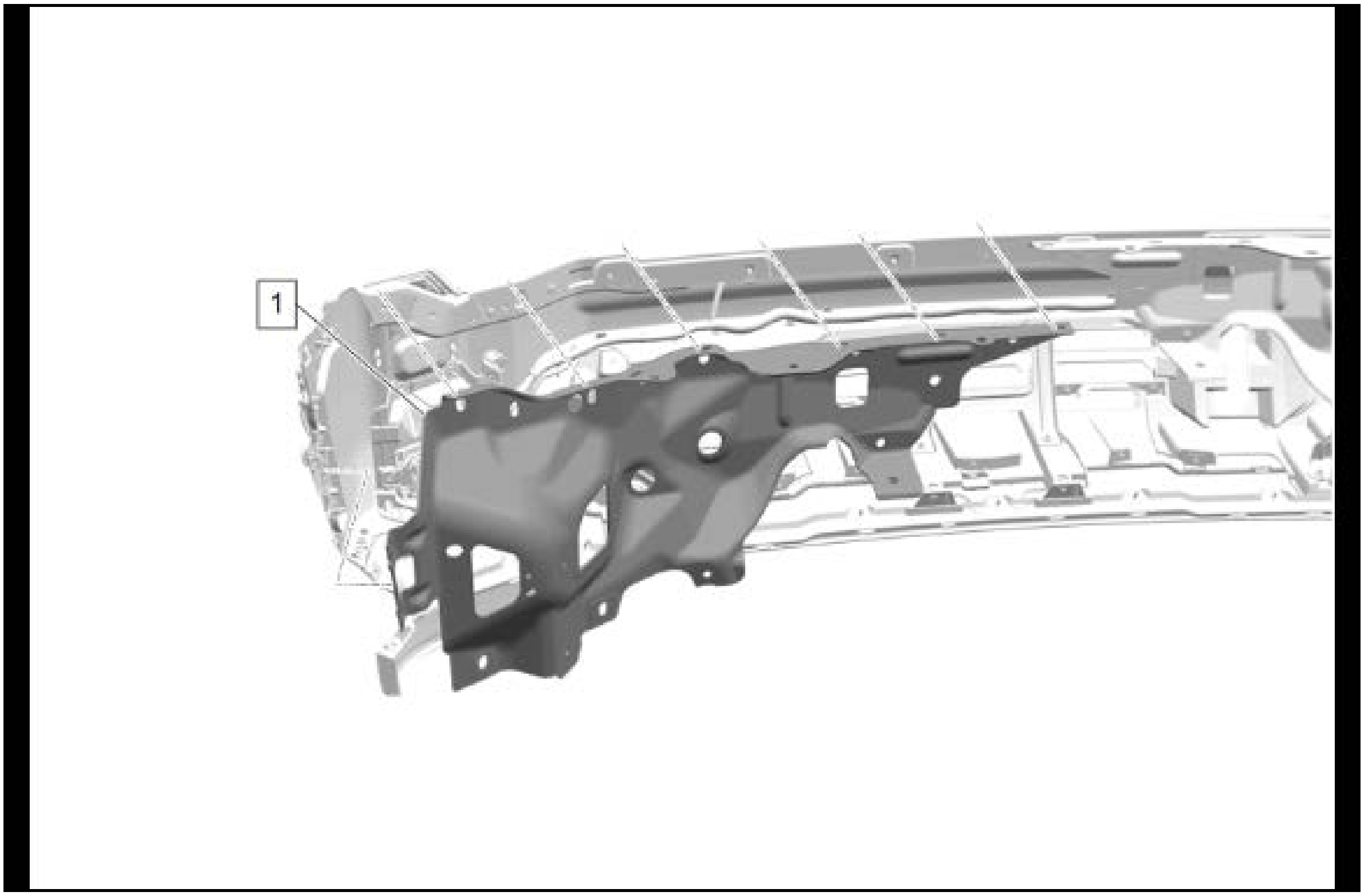
1. Front Parking Assist Alarm Sensor Bracket (1) » Install



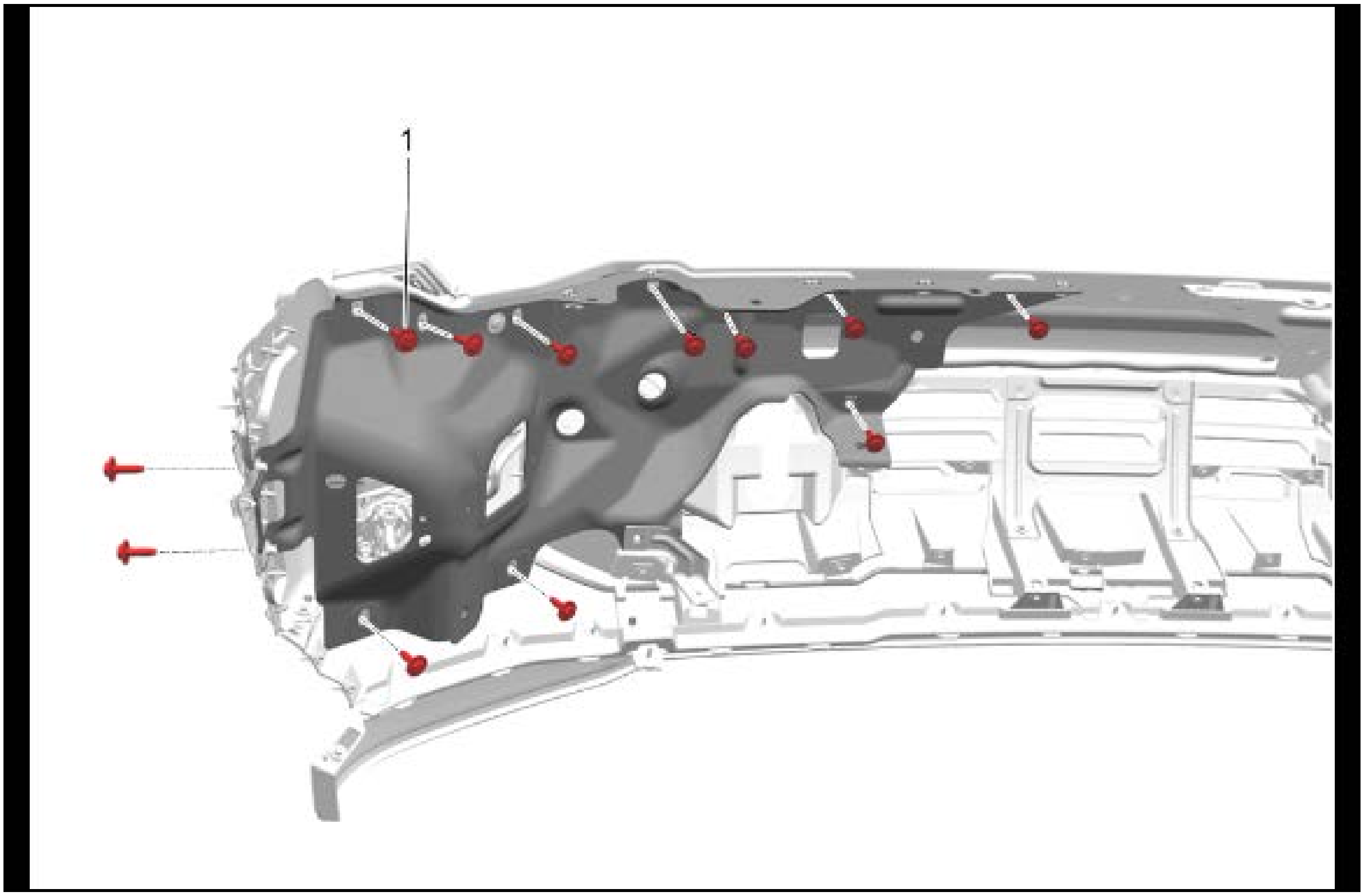
6287113

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

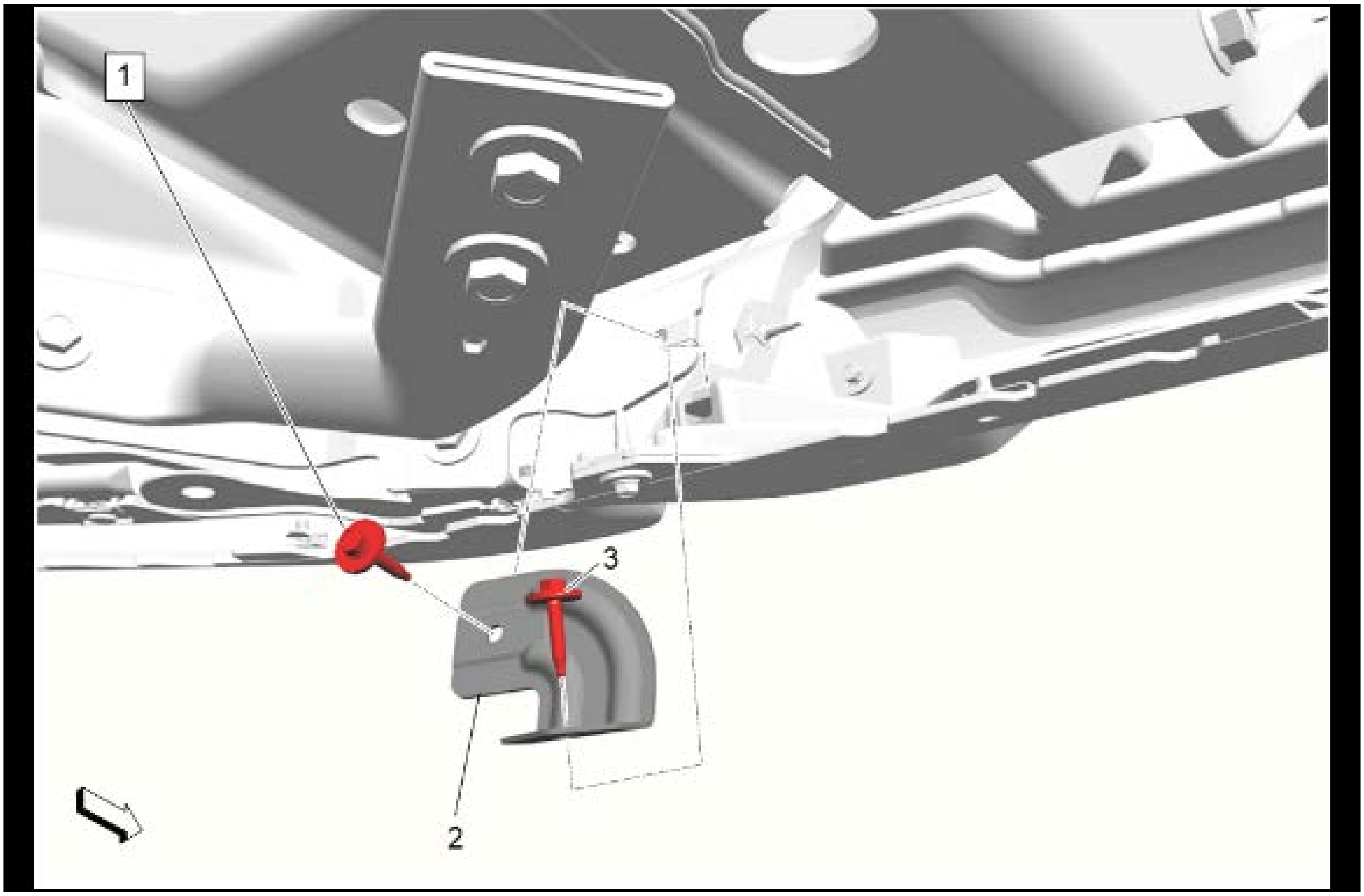
2. Insert the front parking assist alarm sensor (1) into the housing.
3. Connect the electrical connector.



4. Front Bumper Impact Bar Bracket (1) » Install
5. Connect the wiring harness retainers as necessary.

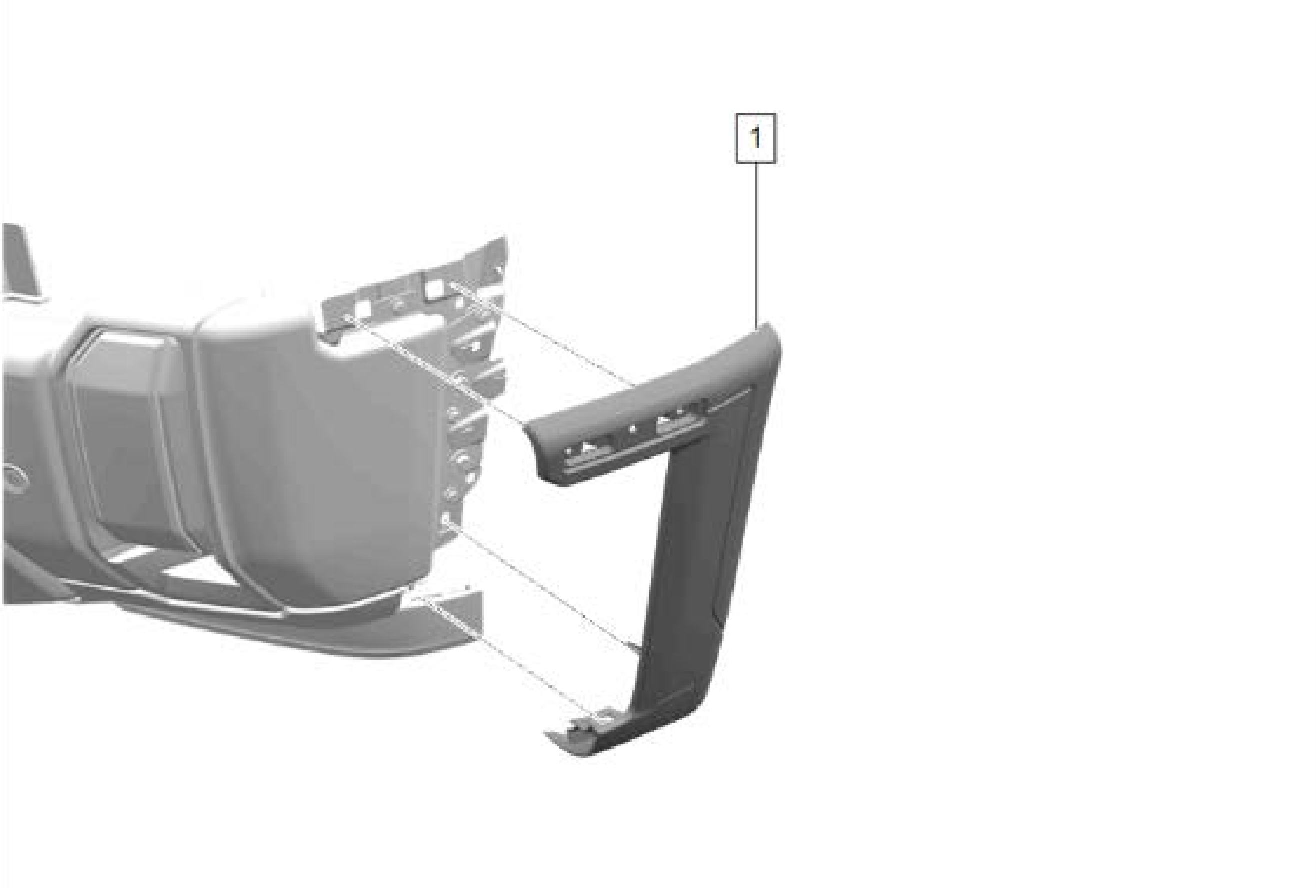


6. Front Bumper Impact Bar Bolt (1) » Install and tighten [12x]

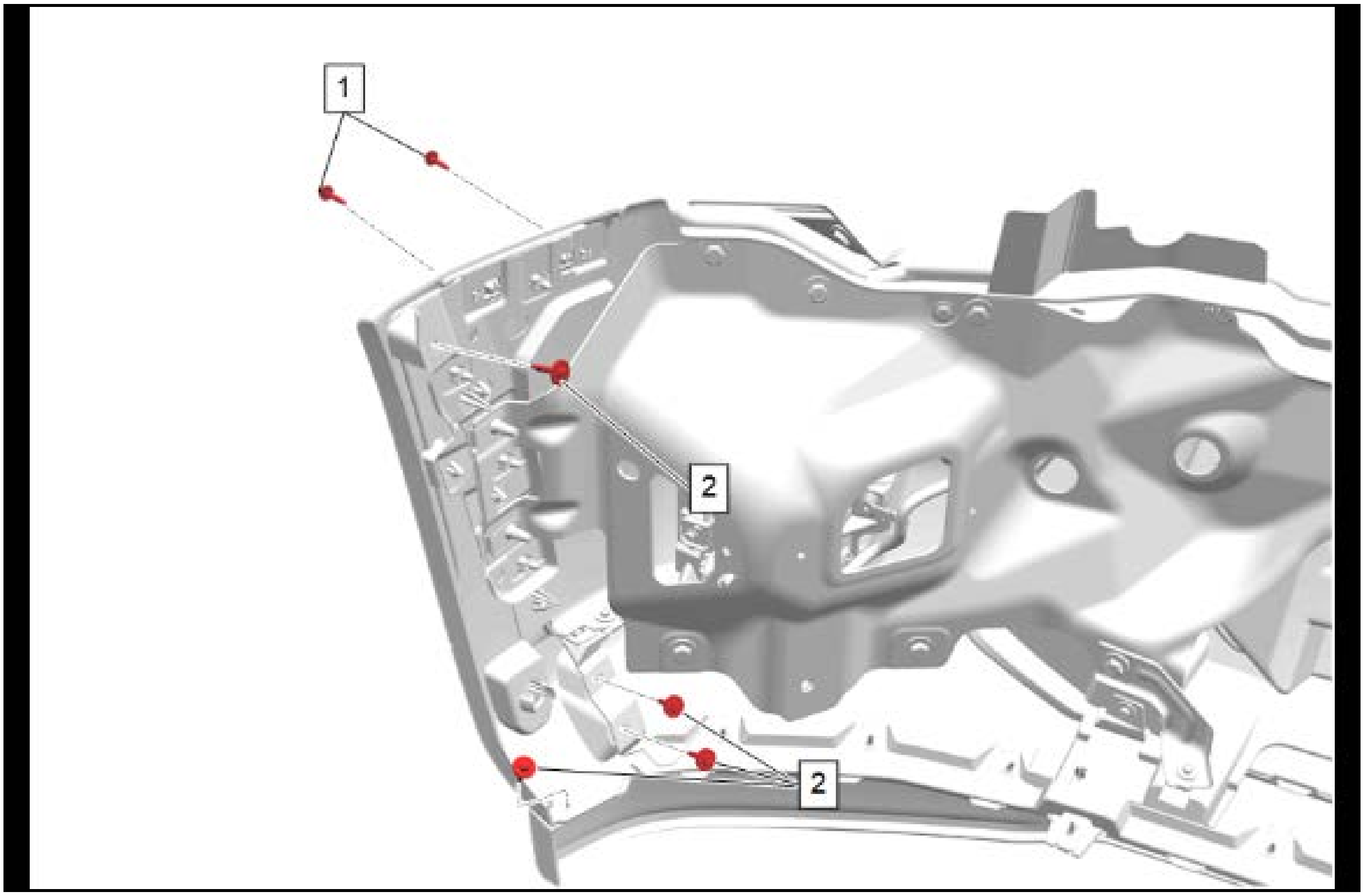


6196072

7. Front Bumper Fascia Outer Bracket (2) » Install
8. Front Bumper Fascia Bolt (1) » Install and tighten [2x]

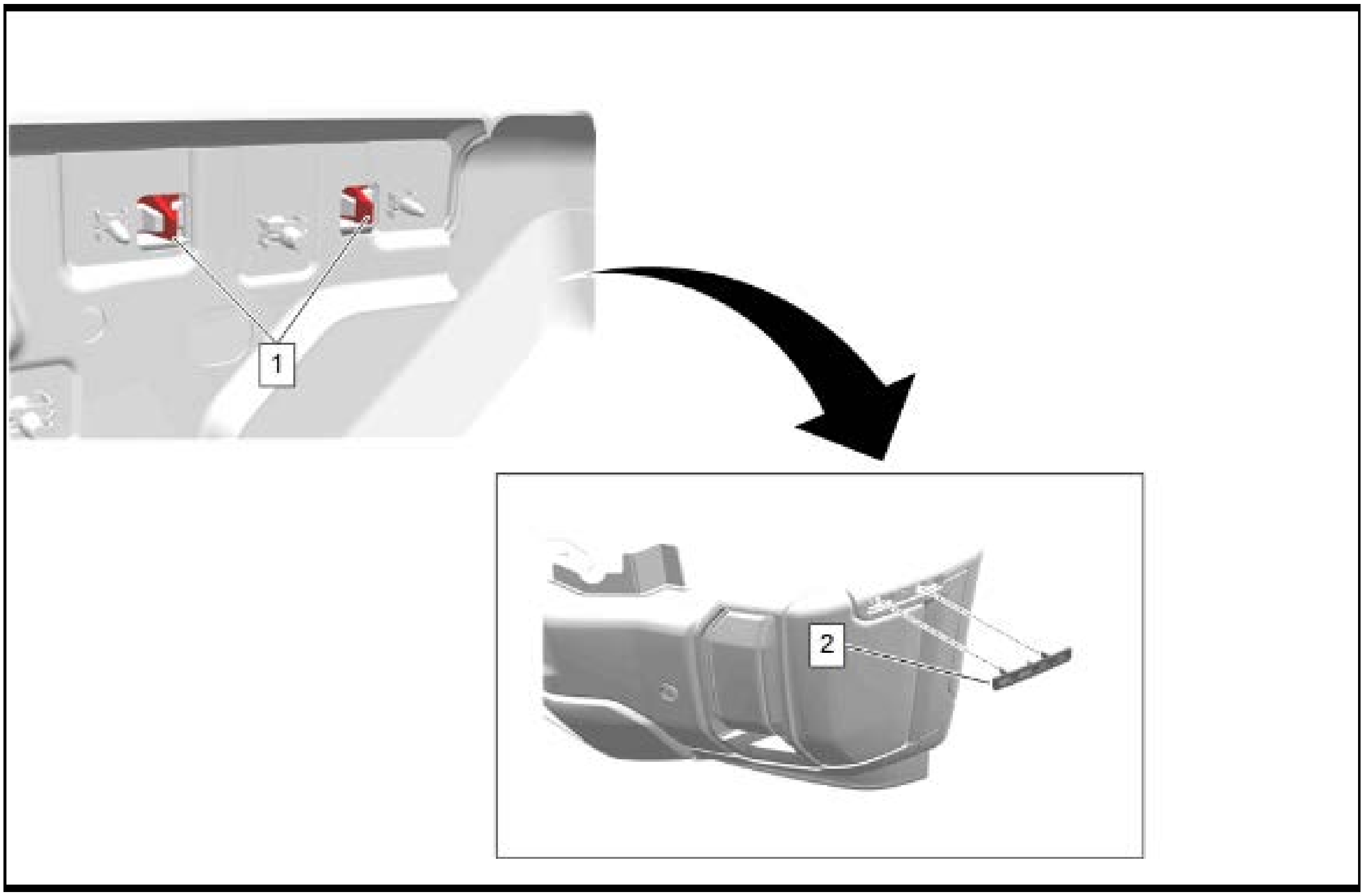


9. Front Bumper Fascia Molding (1) » Install

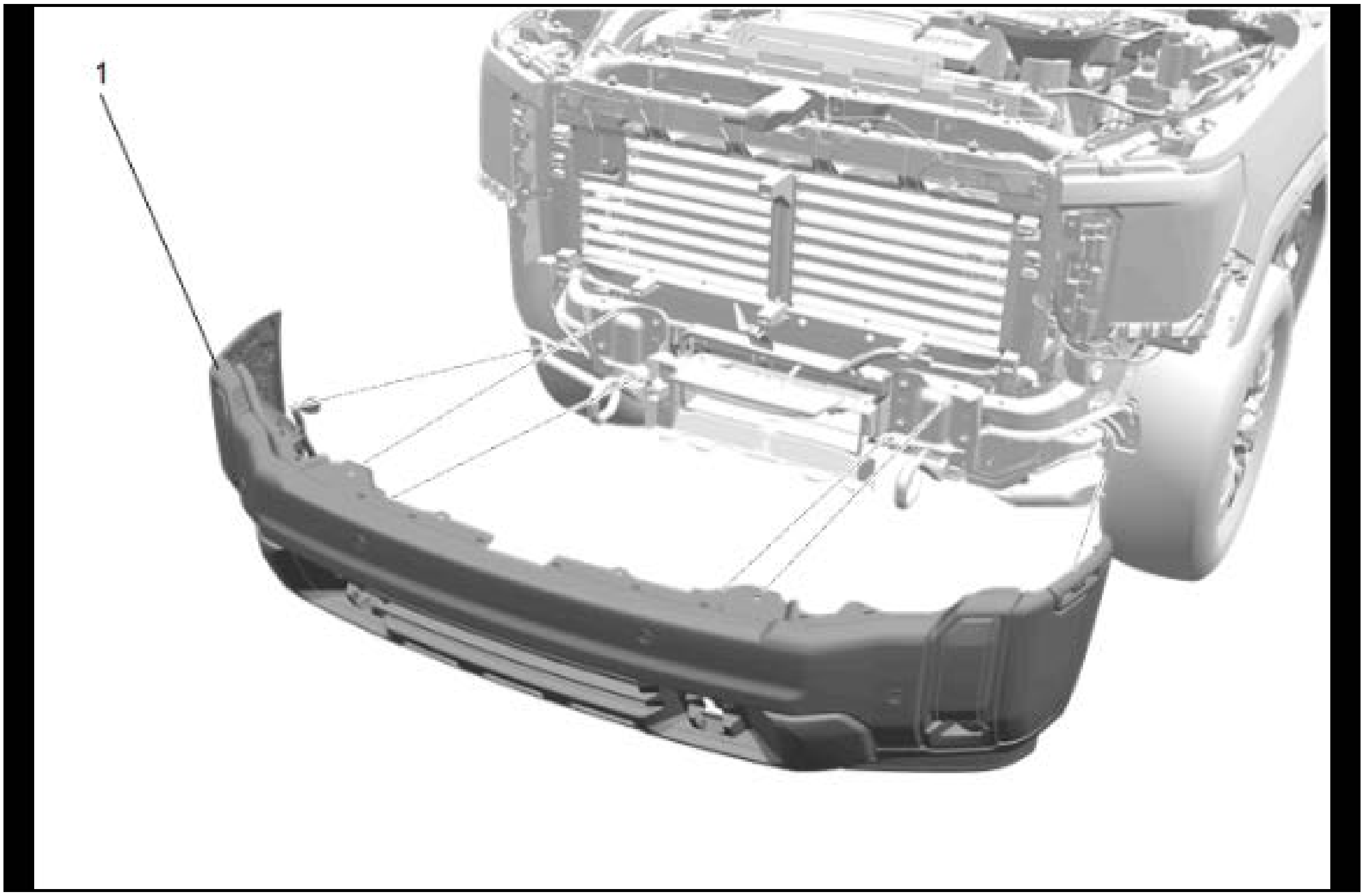


6215153

10. Front Fog Lamp Bolt (2) » Install and tighten [4x]
11. Front Bumper Fascia Bolt (1) » Install and tighten [2x]



12. Front Bumper Fascia Emblem (2) » Install



6259437

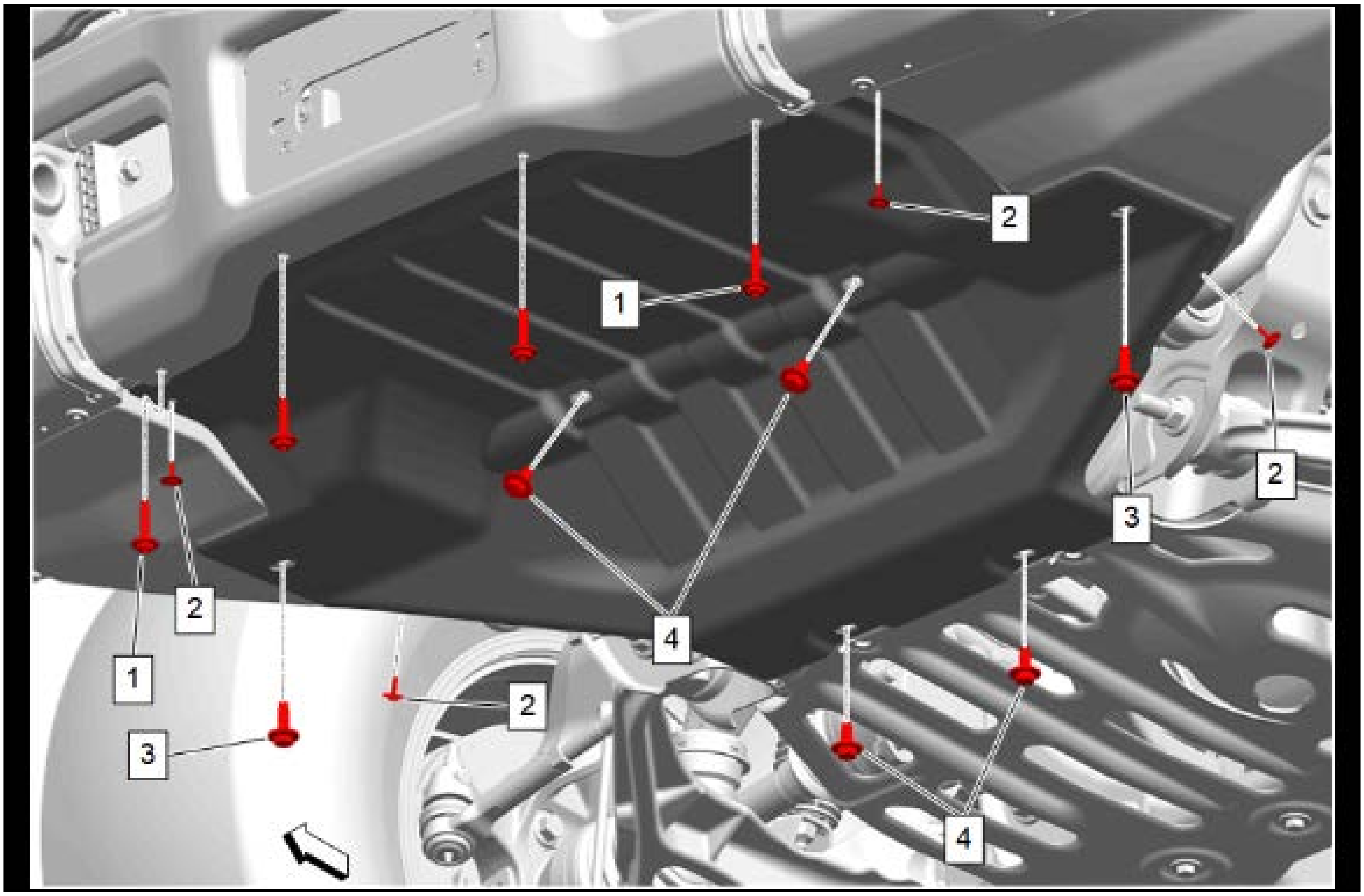
13. With the aid of an assistant, install the impact bar. (1)

Front Parking Assist Alarm Sensor Bracket Replacement

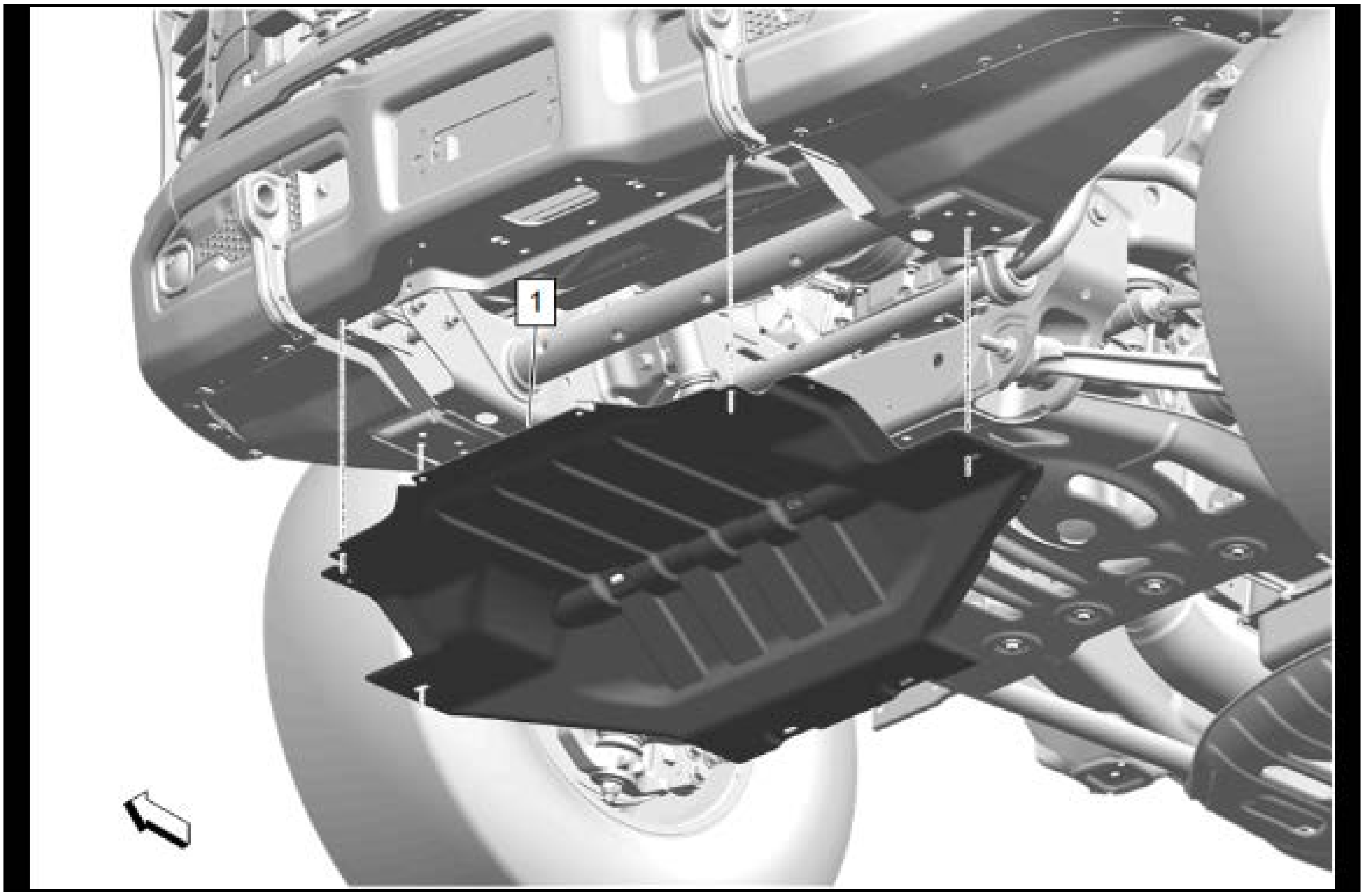
Object-ID=6288275 Owner=Hendrickson, Phil LMD=08-Mar-2023 LMB=Hendrickson, Phil

Removal Procedure

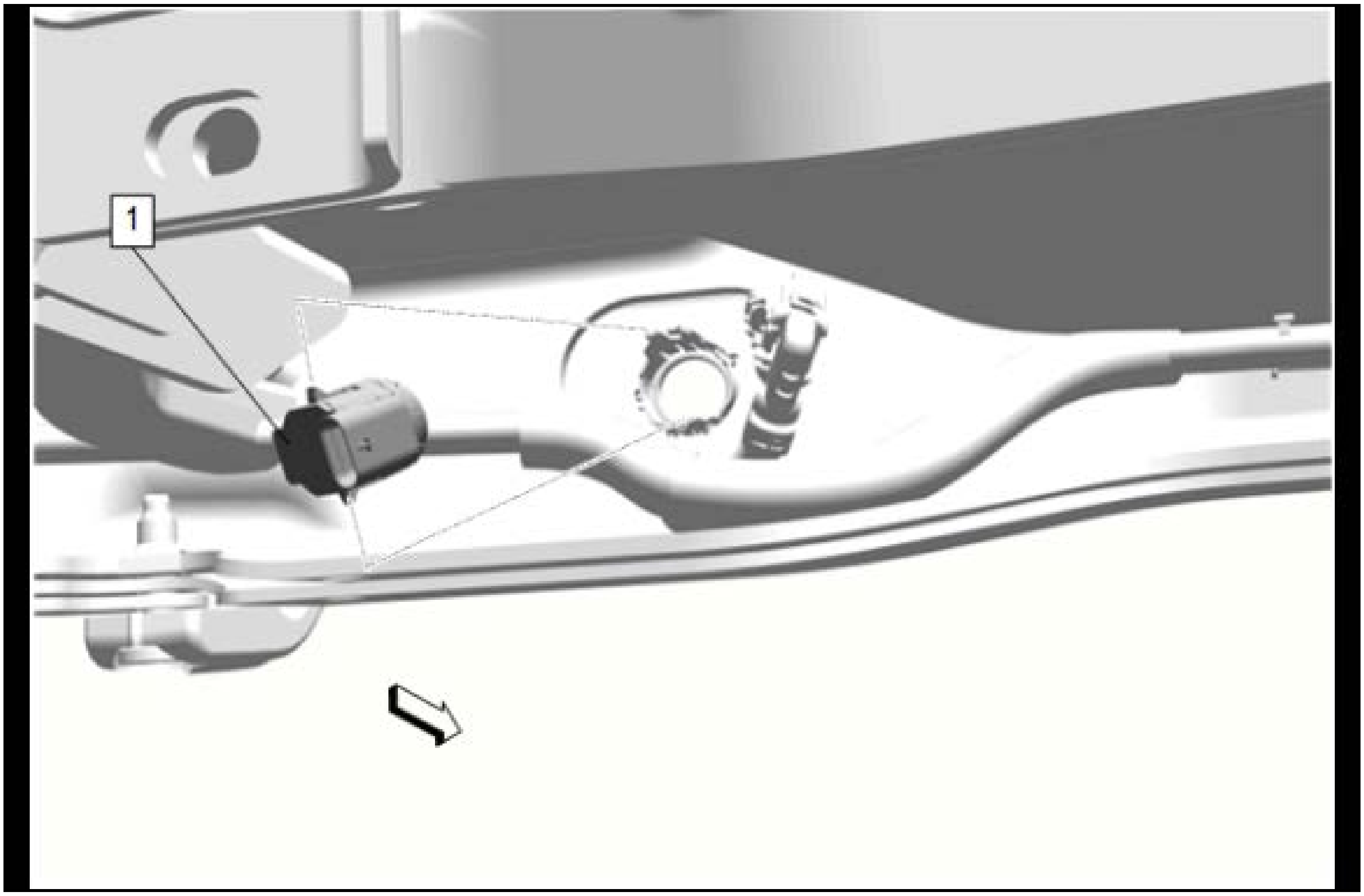
1. Raise and support the vehicle.



2. Underbody Splash Shield Bolt (1) » Remove [4x]
3. Front Bumper Fascia Bolt (2) » Remove [4x]
4. Front Bumper Impact Bar Brace Bolt (3) » Remove [2x]
5. Underbody Splash Shield Bolt (4) » Remove [4x]



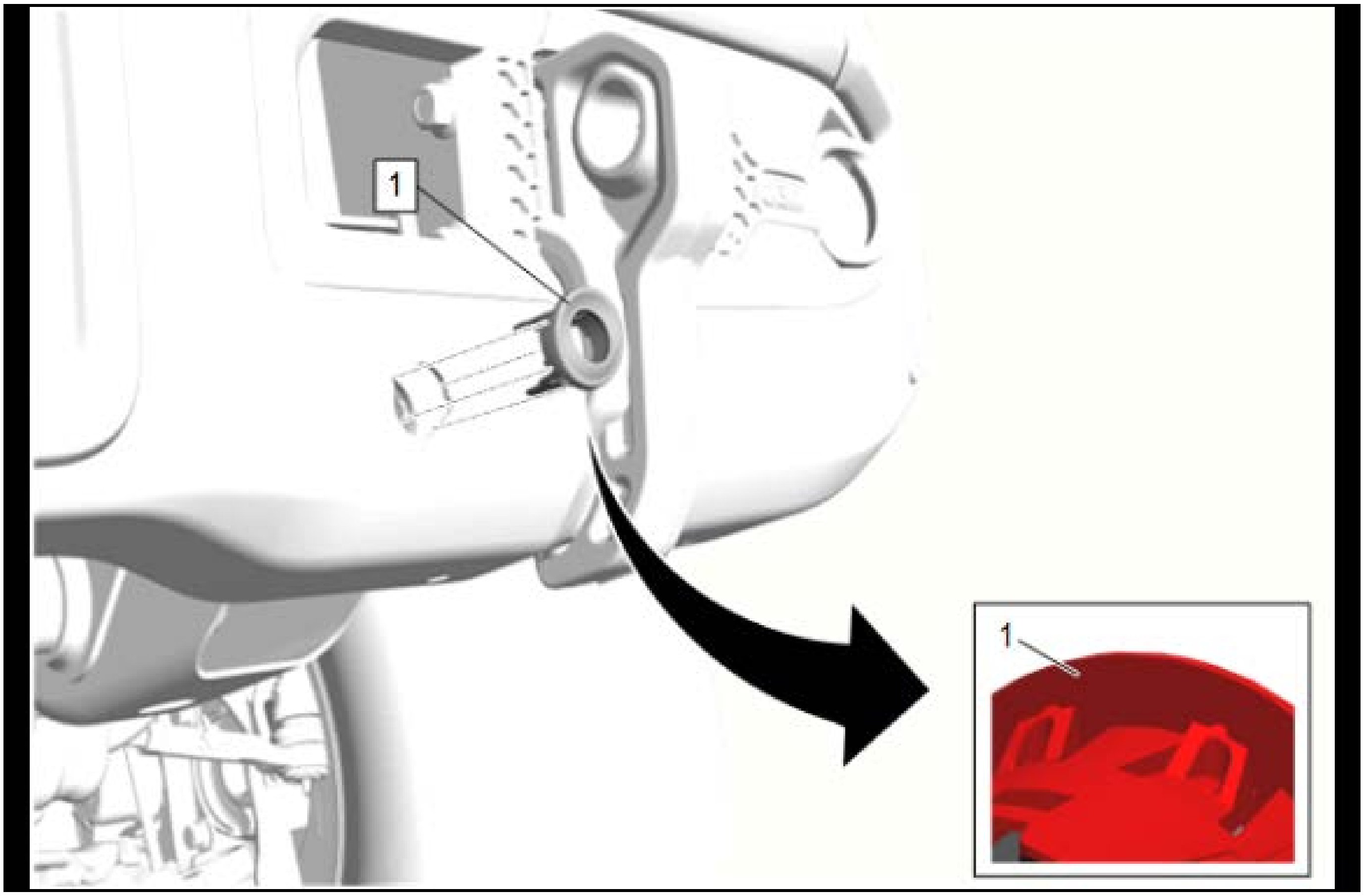
6. Underbody Splash Shield (1) » Remove



6288242

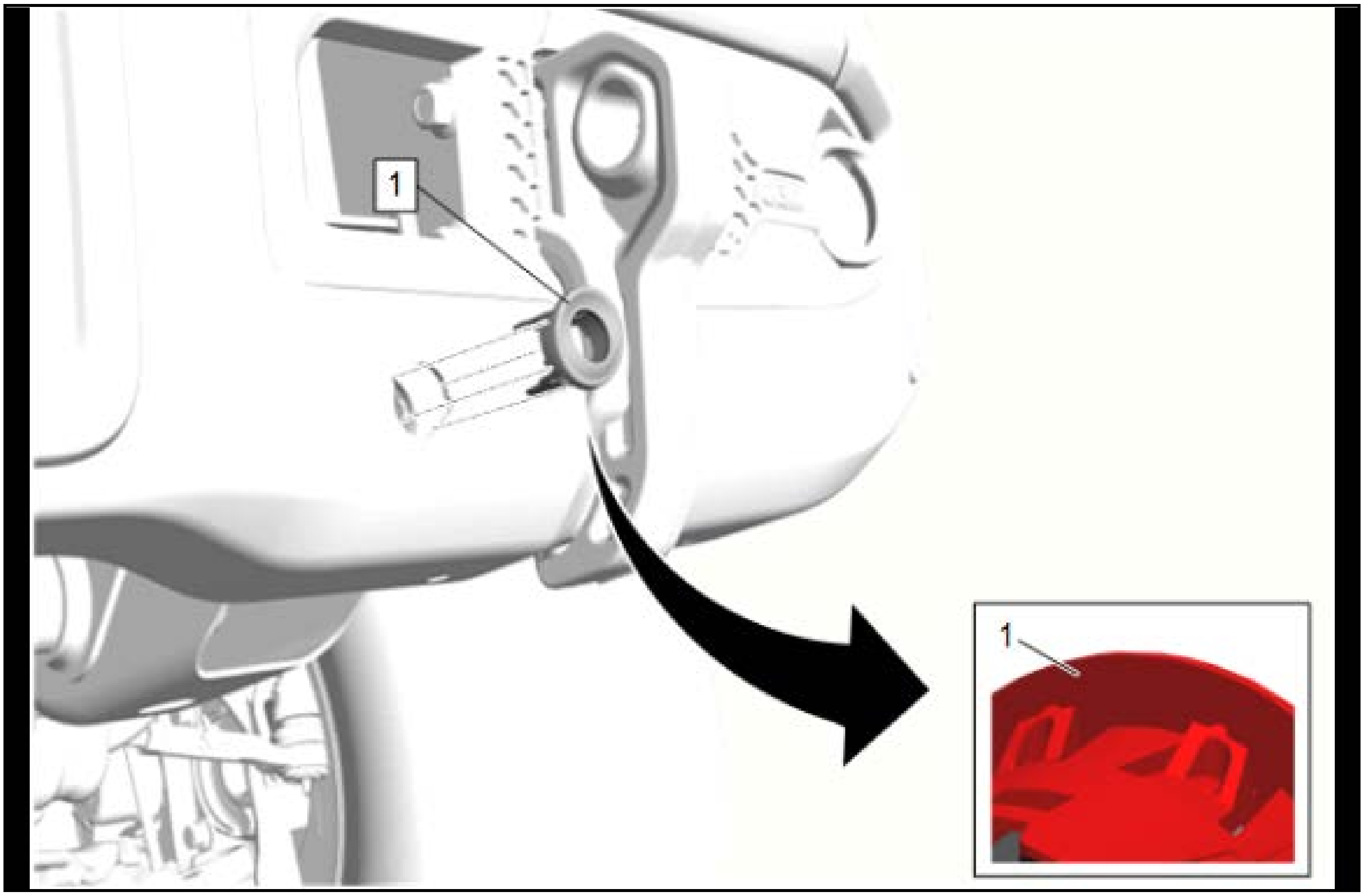
Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

7. Lift the locking tabs on the housing and remove the front parking assist alarm sensor (1).
8. Disconnect the electrical connector.

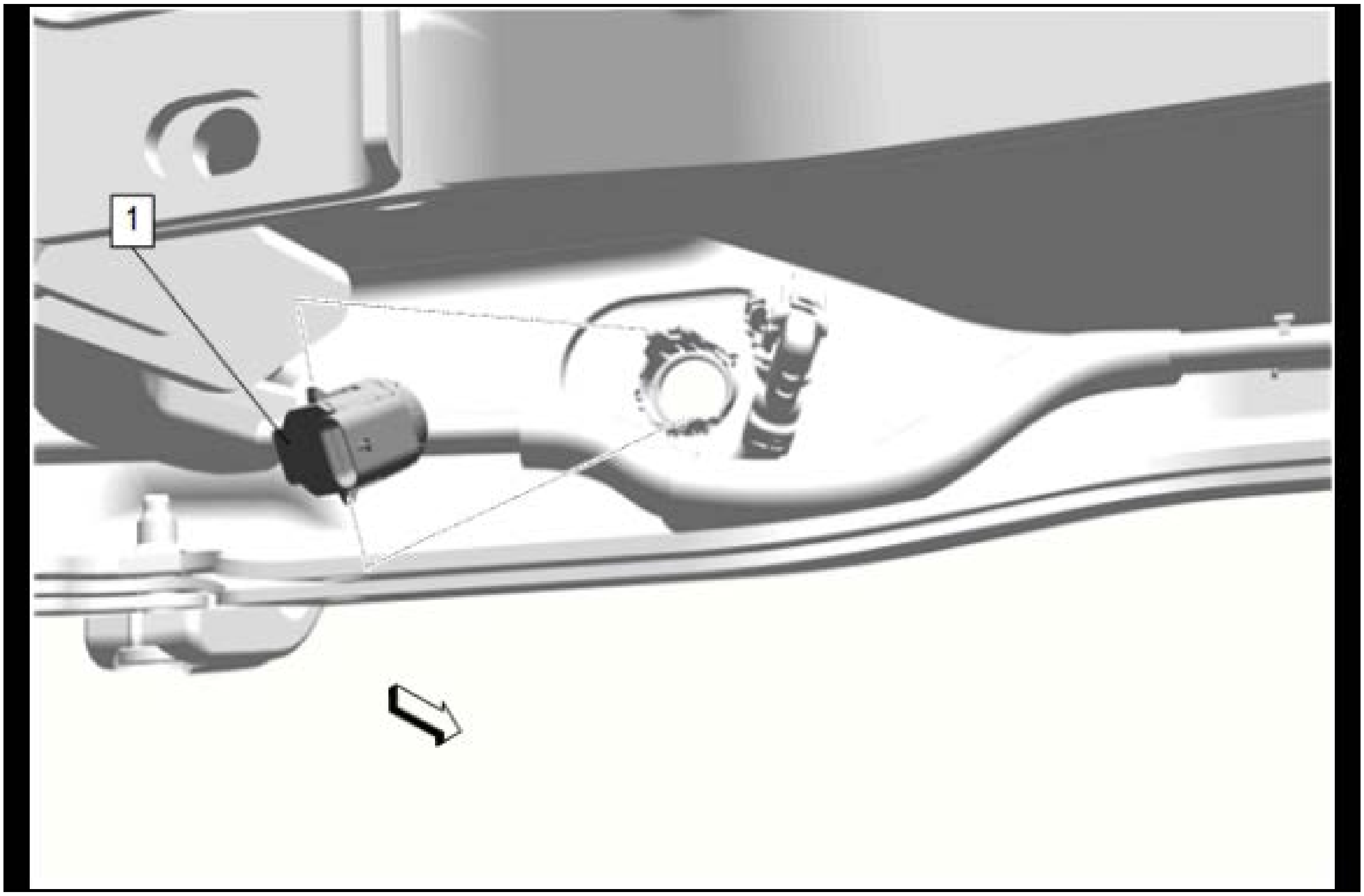


9. Using a flat-bladed plastic trim tool, release the retaining tabs.
10. Front Parking Assist Alarm Sensor Bracket (1) » Remove

Installation Procedure

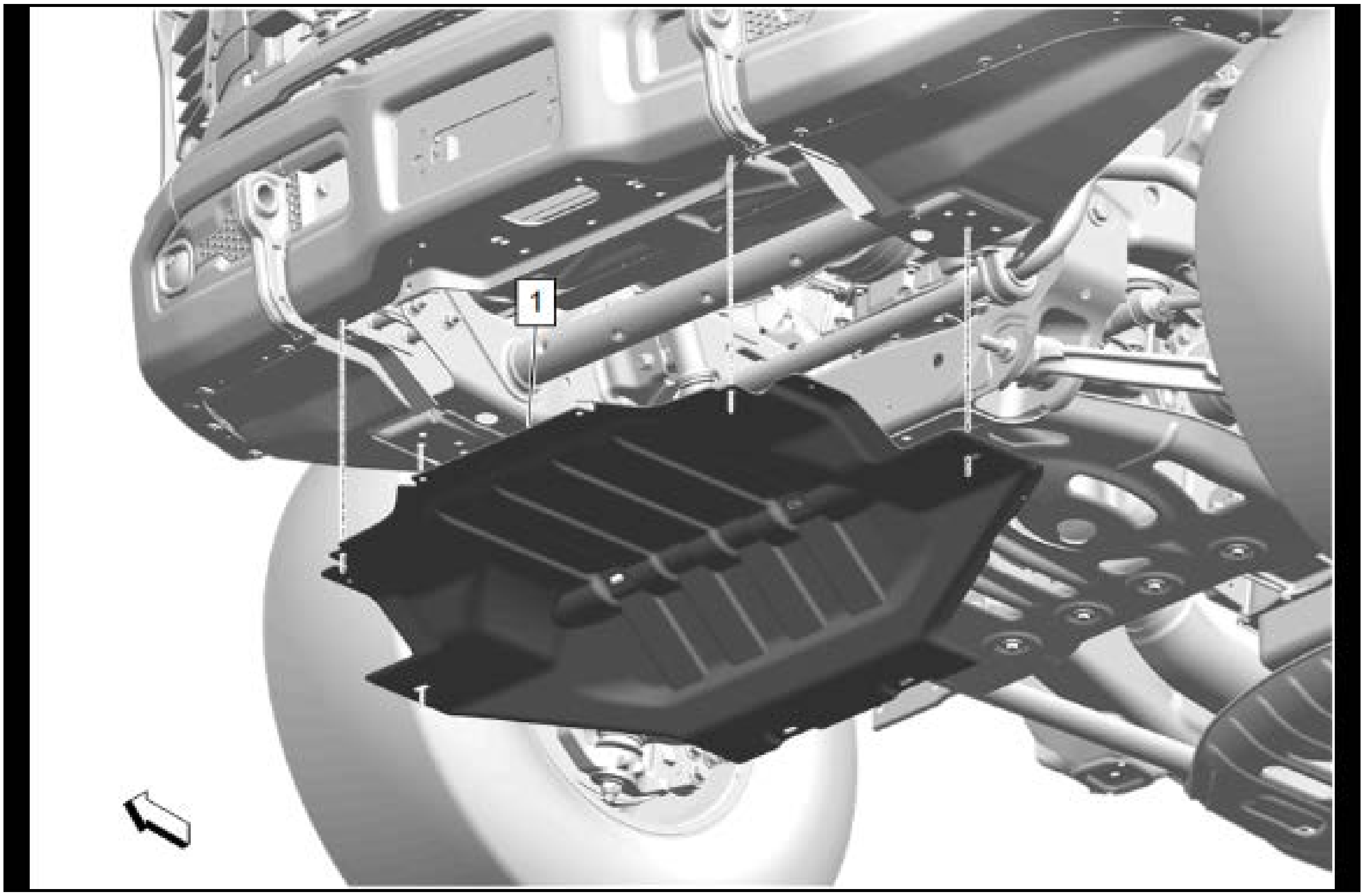


1. Front Parking Assist Alarm Sensor Bracket (1) » Install



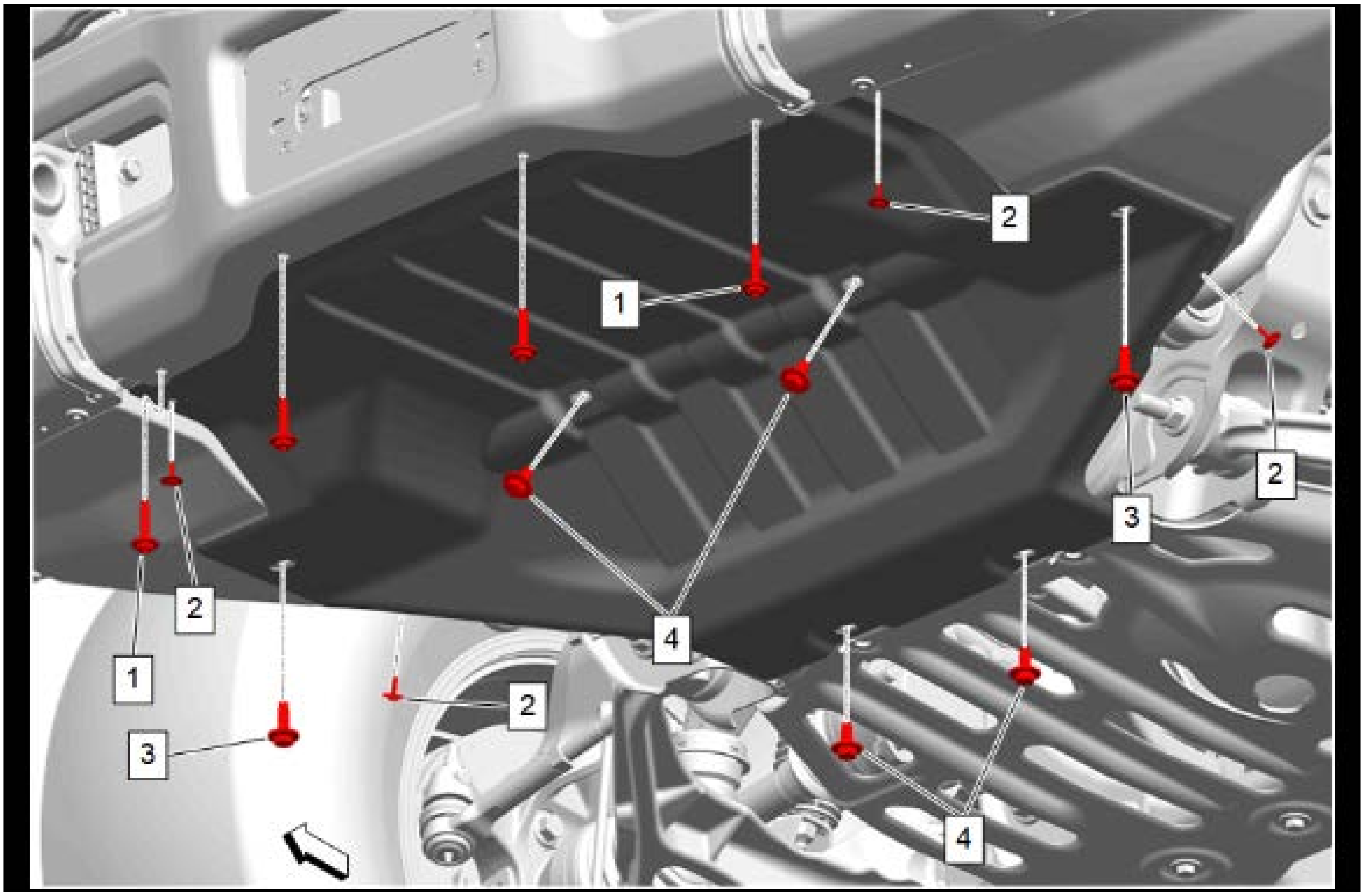
Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

2. Insert the front parking assist alarm sensor (1) into the housing.
3. Connect the electrical connector.



6214918

4. Underbody Splash Shield (1) » Install



6214963

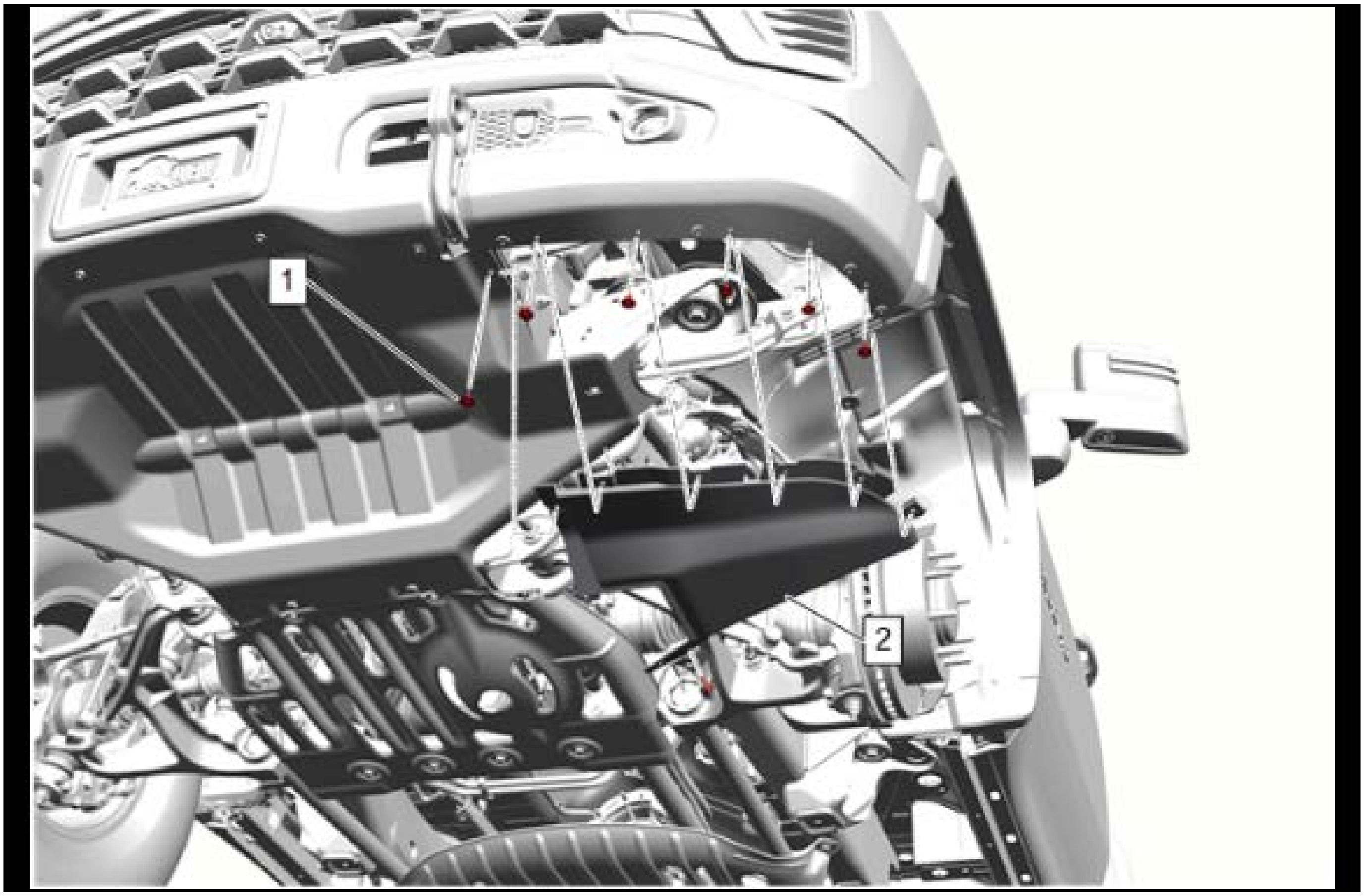
5. Underbody Splash Shield Bolt (4) » Install and tighten [4x]
6. Front Bumper Impact Bar Brace Bolt (3) » Install and tighten [2x]
7. Front Bumper Fascia Bolt (2) » Install and tighten [4x]
8. Underbody Splash Shield Bolt (1) » Install and tighten [4x]
9. Remove the support and lower the vehicle.

Front Parking Assist Alarm Sensor Bracket Replacement - Outer

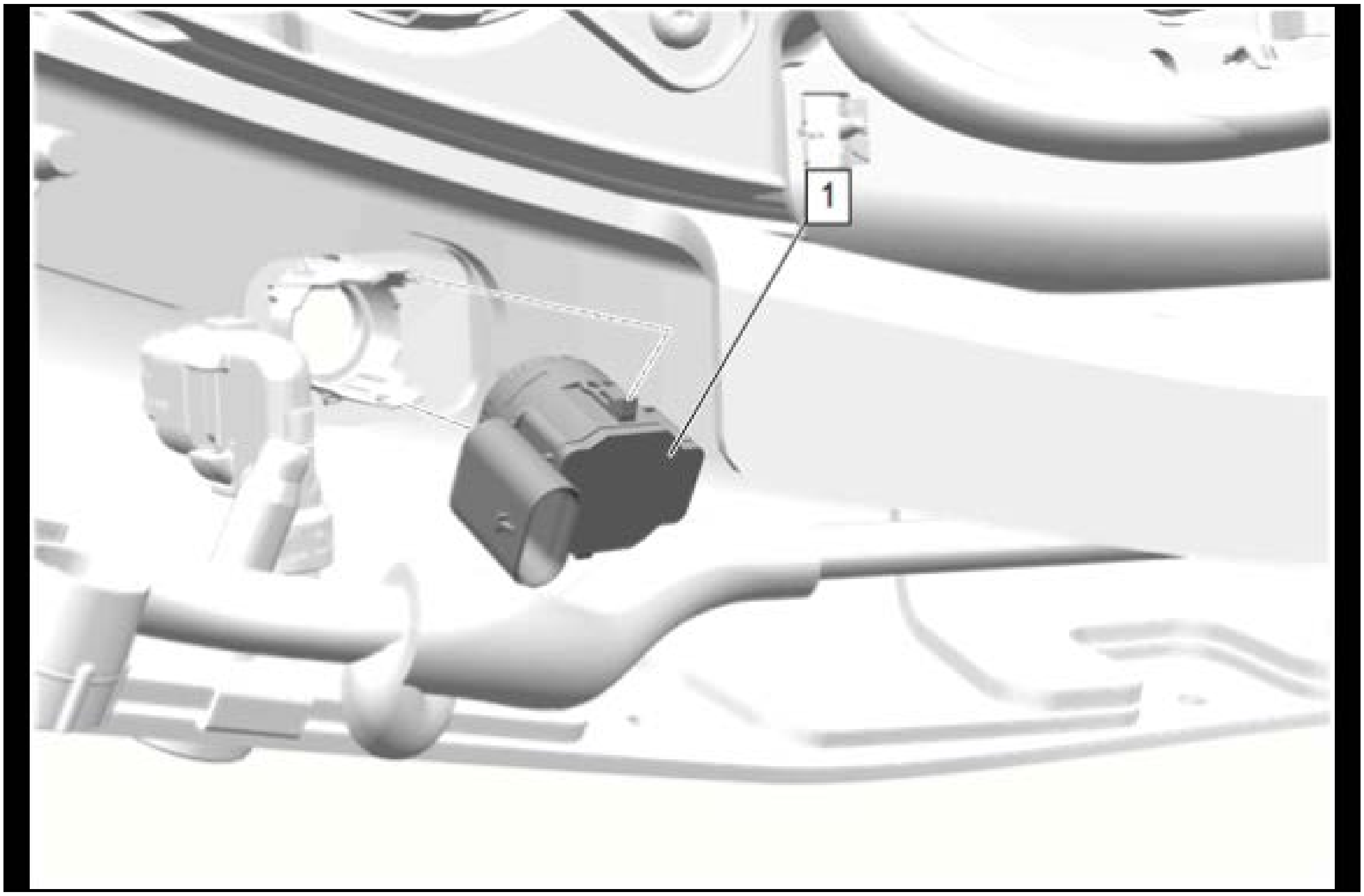
Object-ID=6289017 Owner=Hendrickson, Phil LMD=08-Mar-2023 LMB=Hendrickson, Phil

Removal Procedure

1. Raise and support the vehicle.



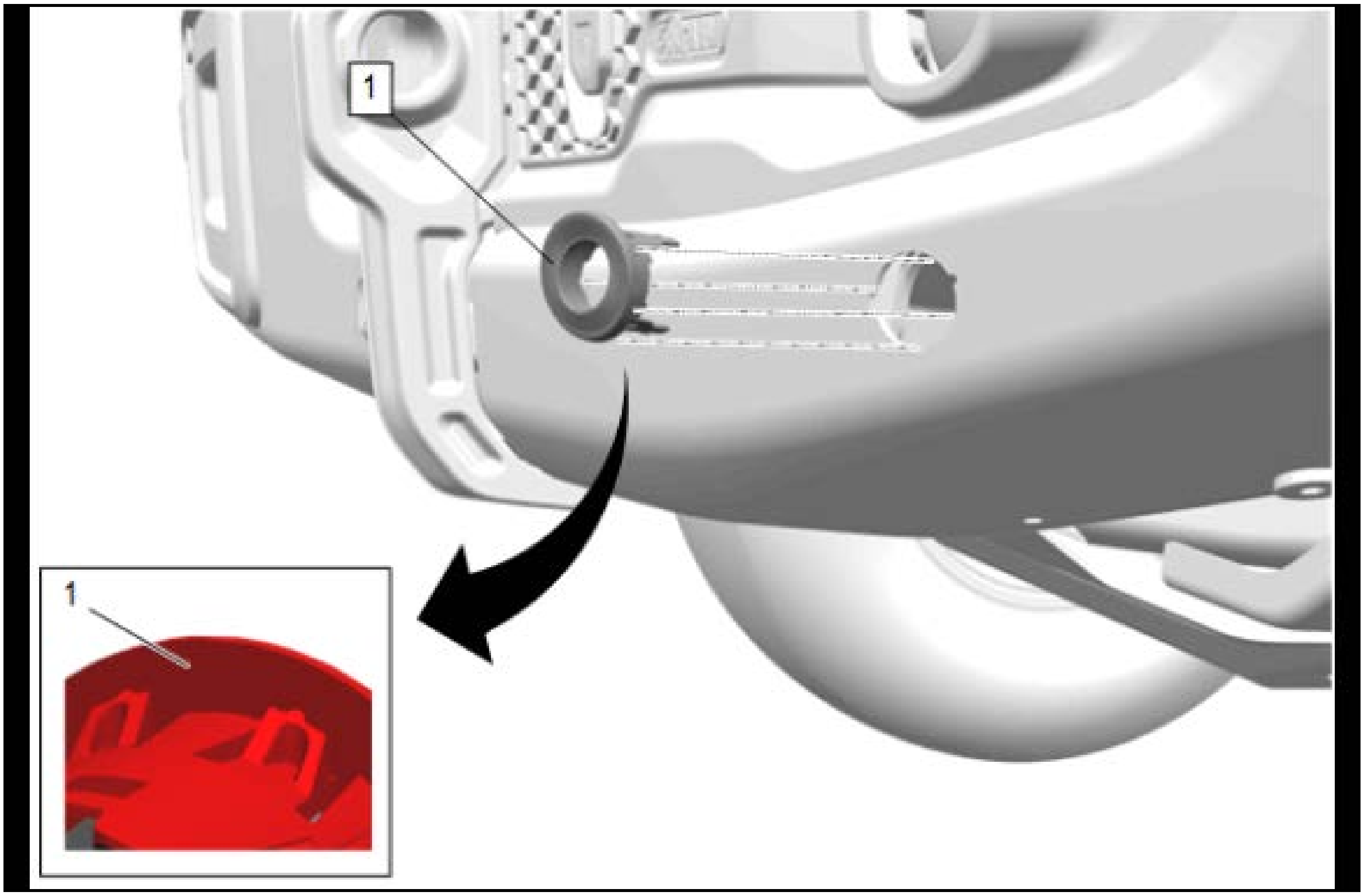
2. Front Bumper Fascia Bolt (1) » Remove [7x]
3. Front Bumper Lower Fascia (2) » Remove



6288306

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

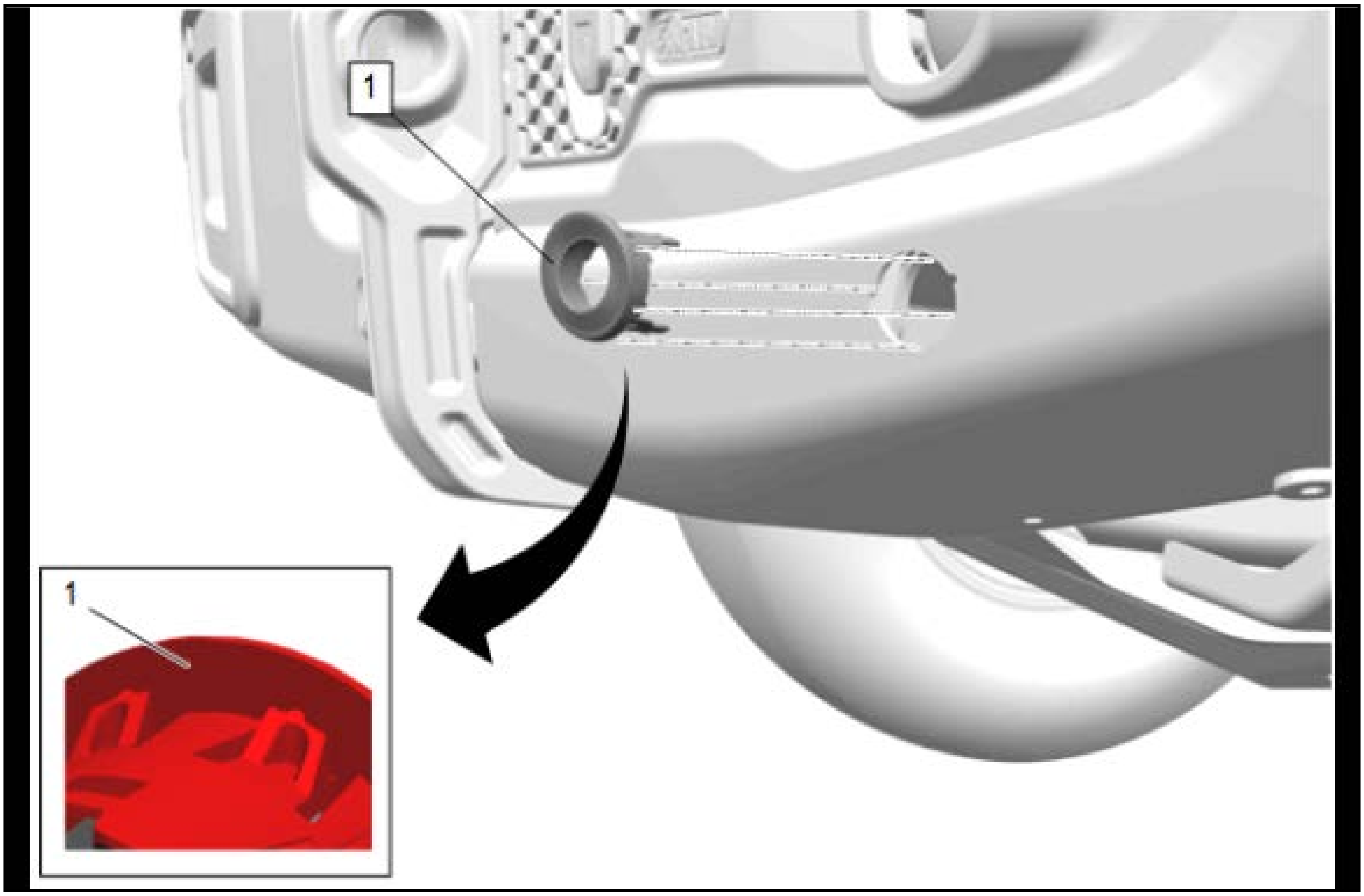
4. Lift the locking tabs on the housing and remove the front parking assist alarm outer sensor (1).
5. Disconnect the electrical connector.



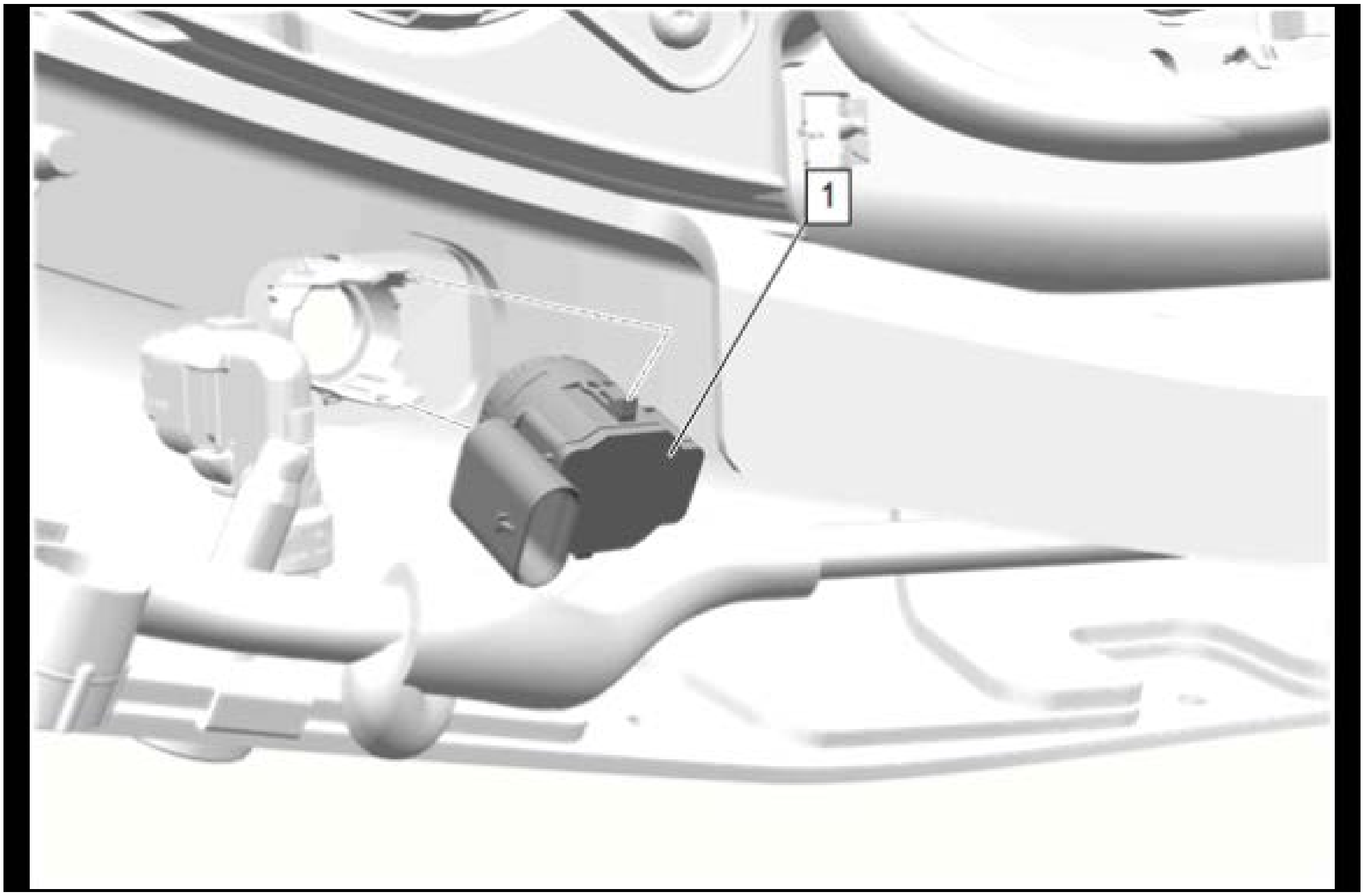
6288312

6. Using a flat-bladed plastic trim tool, release the retaining tabs.
7. Front Parking Assist Alarm Sensor Bracket - Outer (1) » Remove

Installation Procedure



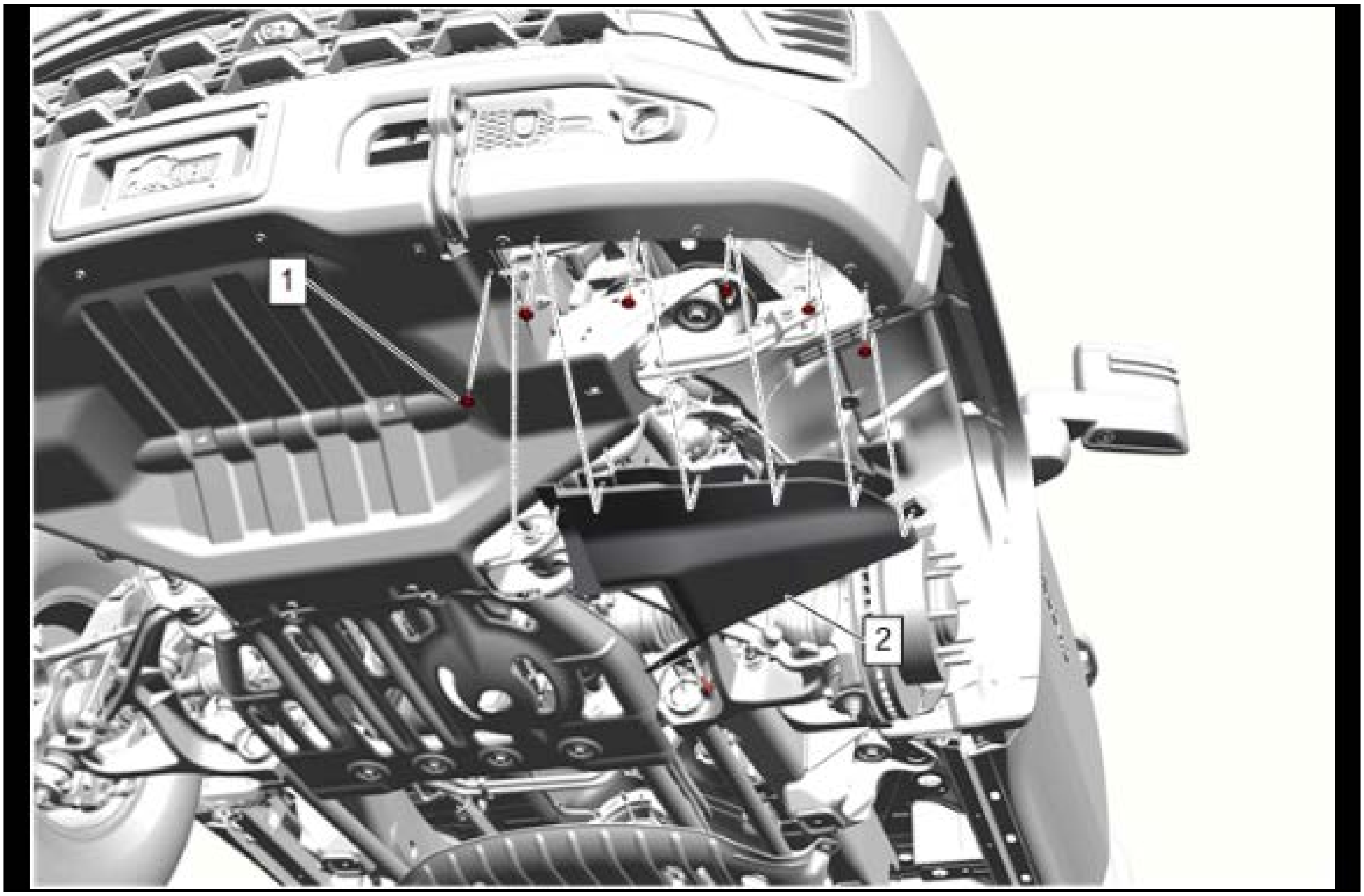
1. Front Parking Assist Alarm Sensor Bracket - Outer (1) » Install



6288306

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

2. Insert the front parking assist alarm outer sensor (1) into the housing.
3. Connect the electrical connector.



6215191

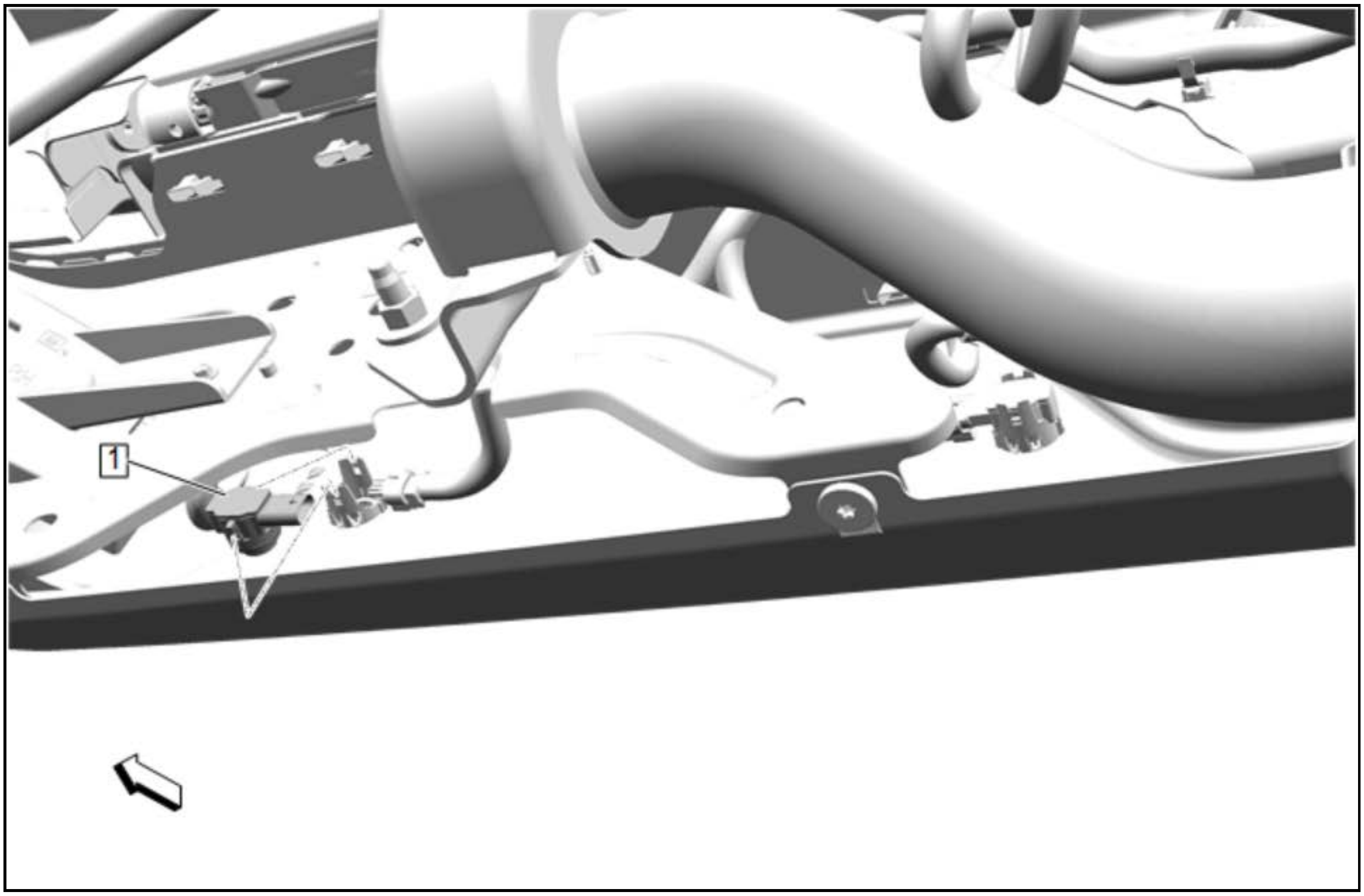
4. Front Bumper Lower Fascia (2) » Install
5. Front Bumper Fascia Bolt (1) » Install and tighten [7x]
6. Remove the support and lower the vehicle.

Rear Parking Assist Alarm Sensor Replacement

Object-ID=5256066 Owner=Hendrickson, Phil LMD=06-Mar-2019 LMB=McMillan, Tim

Removal Procedure

1. Raise and support the vehicle.

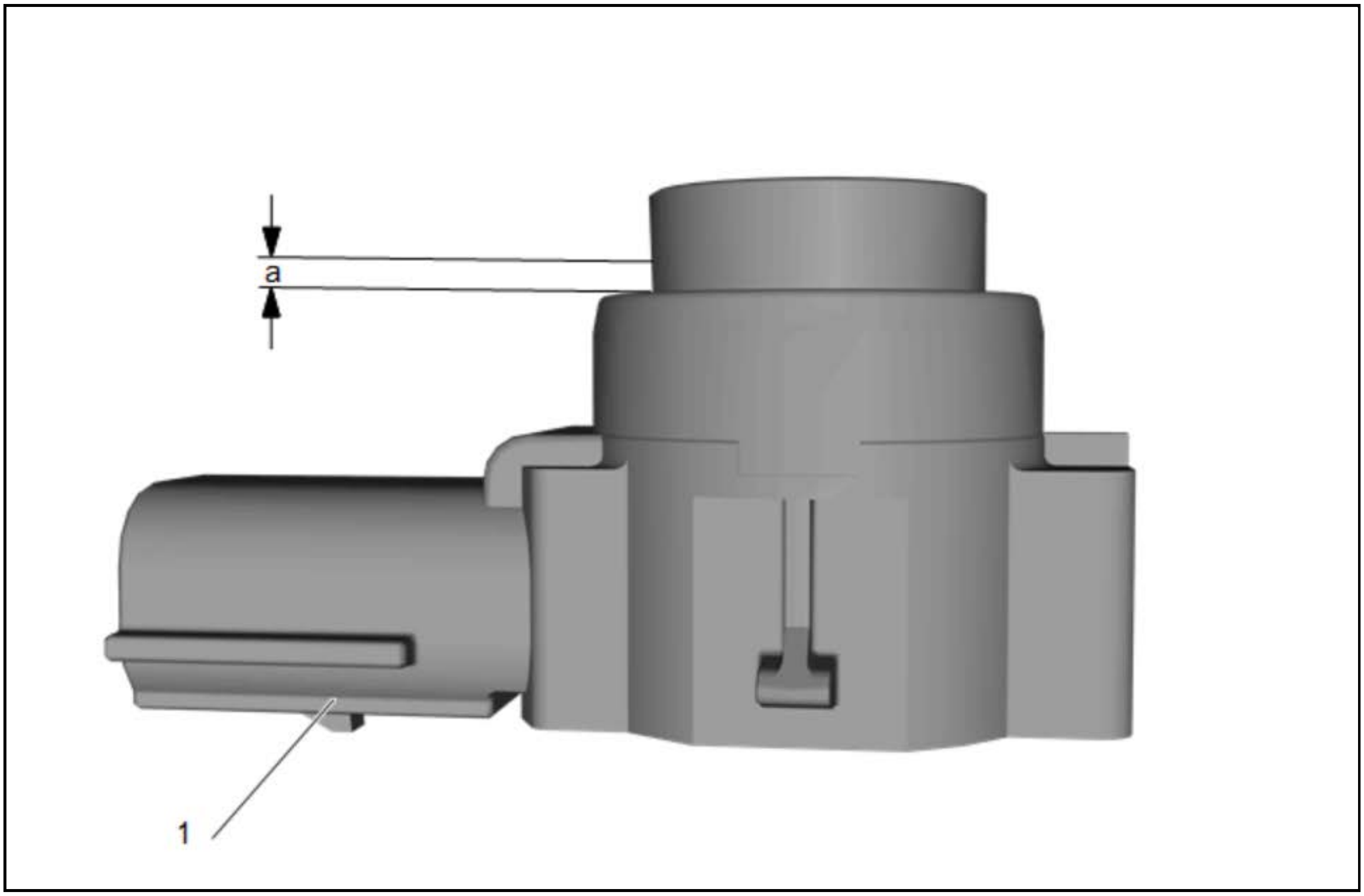


5256072

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

3. Lift the locking tabs on the housing and remove the object sensor (1).
4. Disconnect the electrical connector.

Painting Procedure

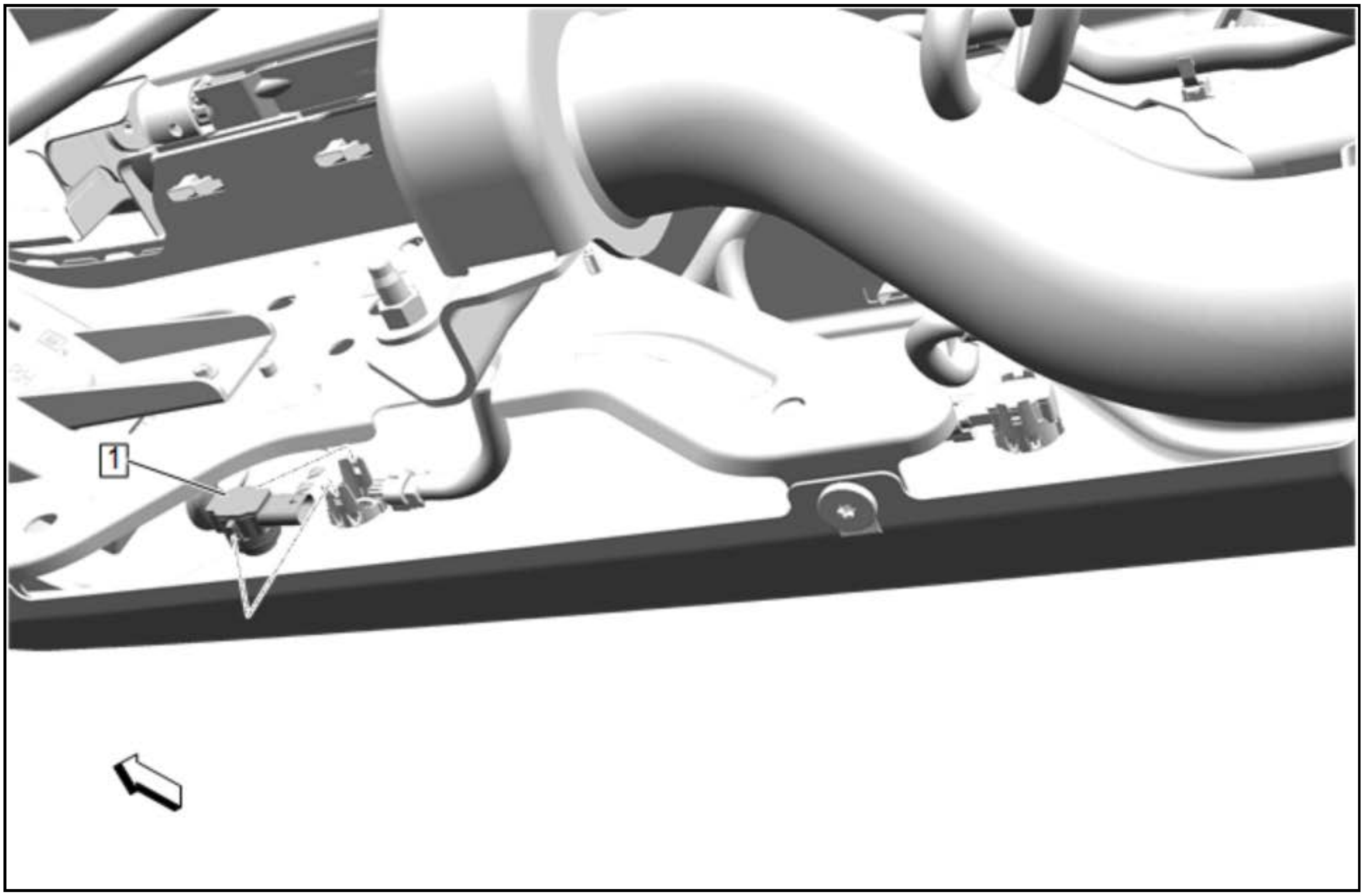


5001999

Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



5256072

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

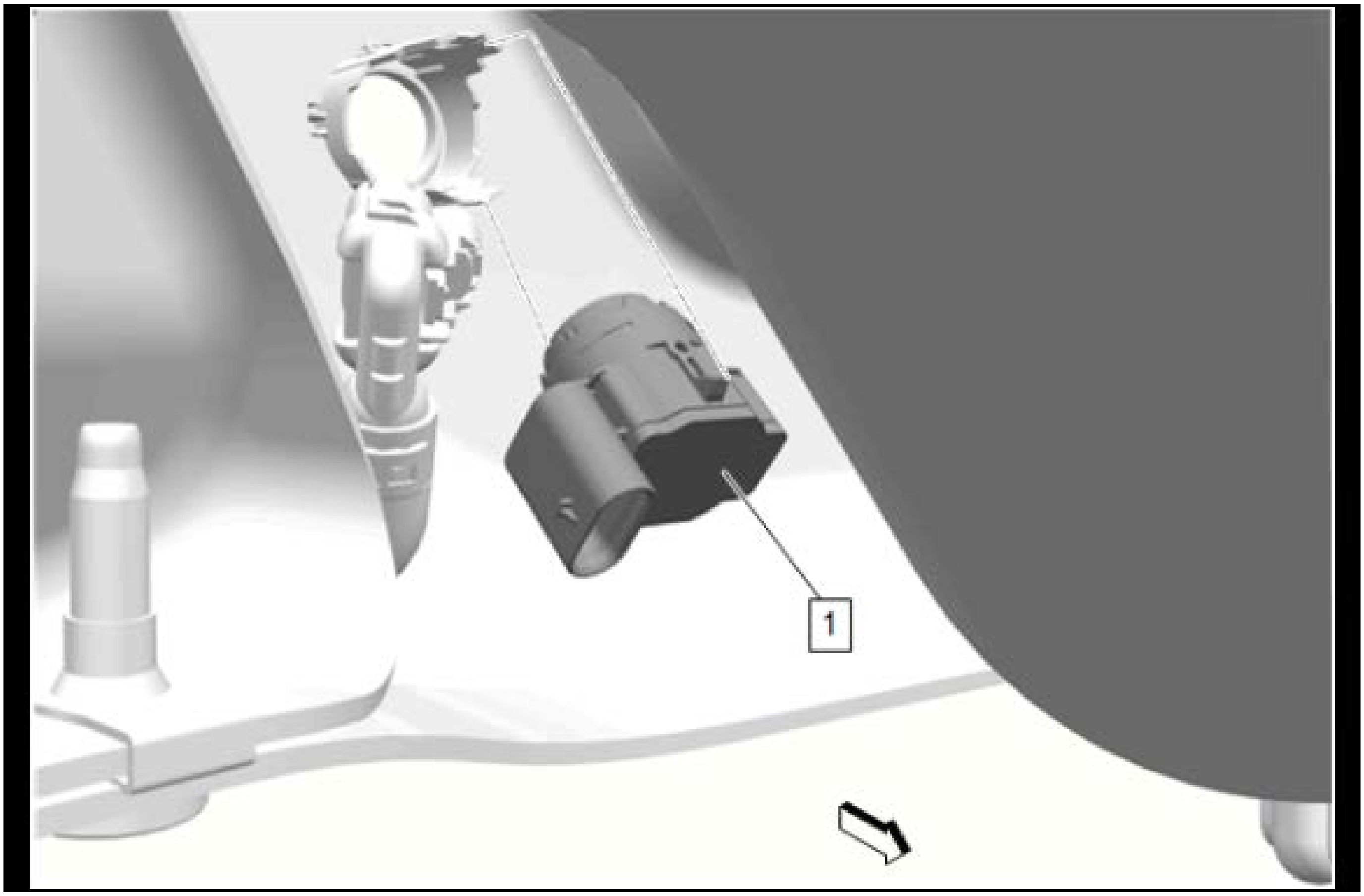
1. Insert the sensor (1) into the housing.
2. Connect the electrical connector.
3. Lower the vehicle.

Rear Parking Assist Alarm Sensor Replacement

Object-ID=6286080 Owner=Hendrickson, Phil LMD=08-Mar-2023 LMB=Hendrickson, Phil

Removal Procedure

1. Raise and support the vehicle.

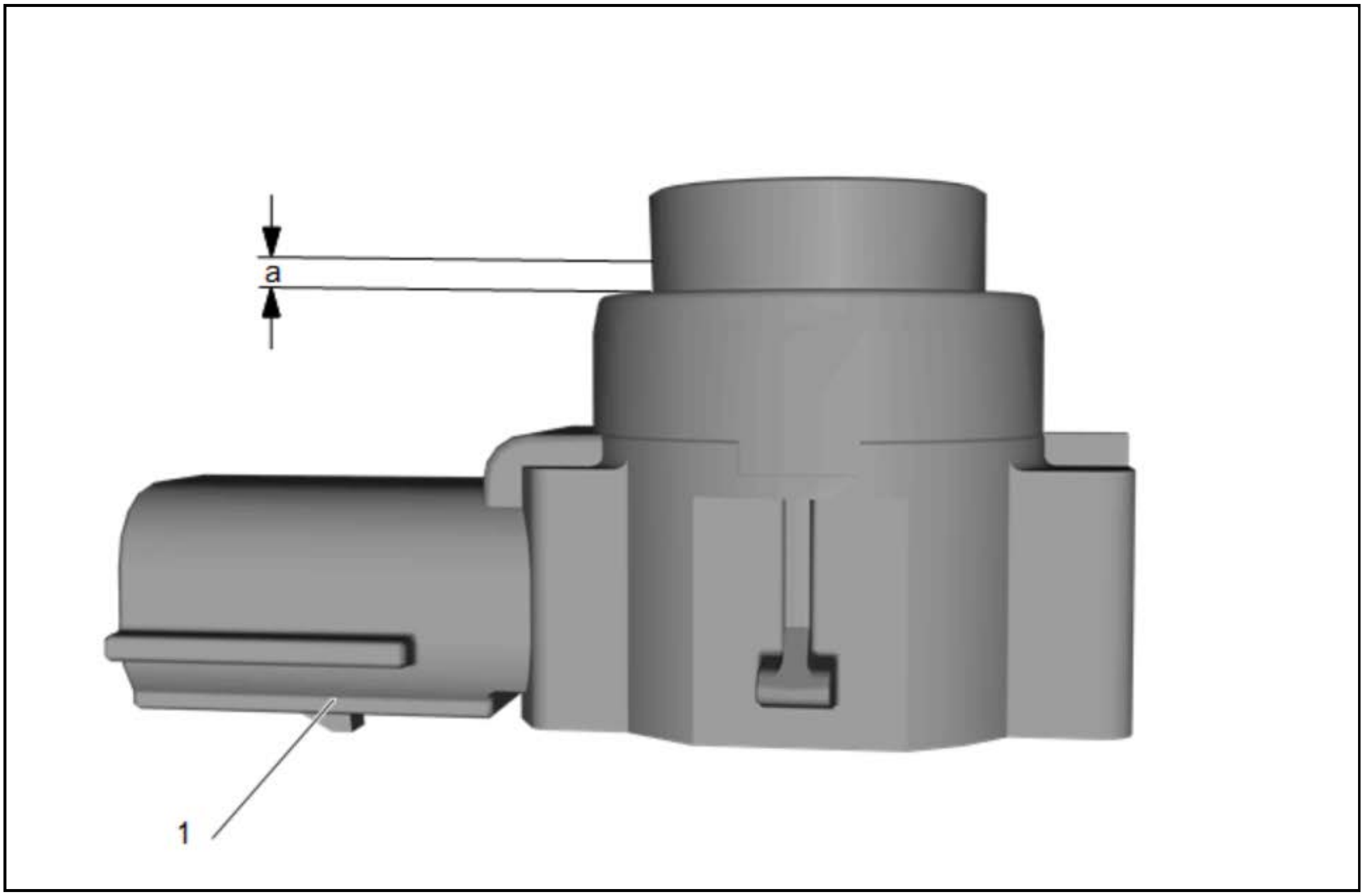


6286406

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

3. Lift the locking tabs on the housing and remove the object sensor (1).
4. Disconnect the electrical connector.

Painting Procedure

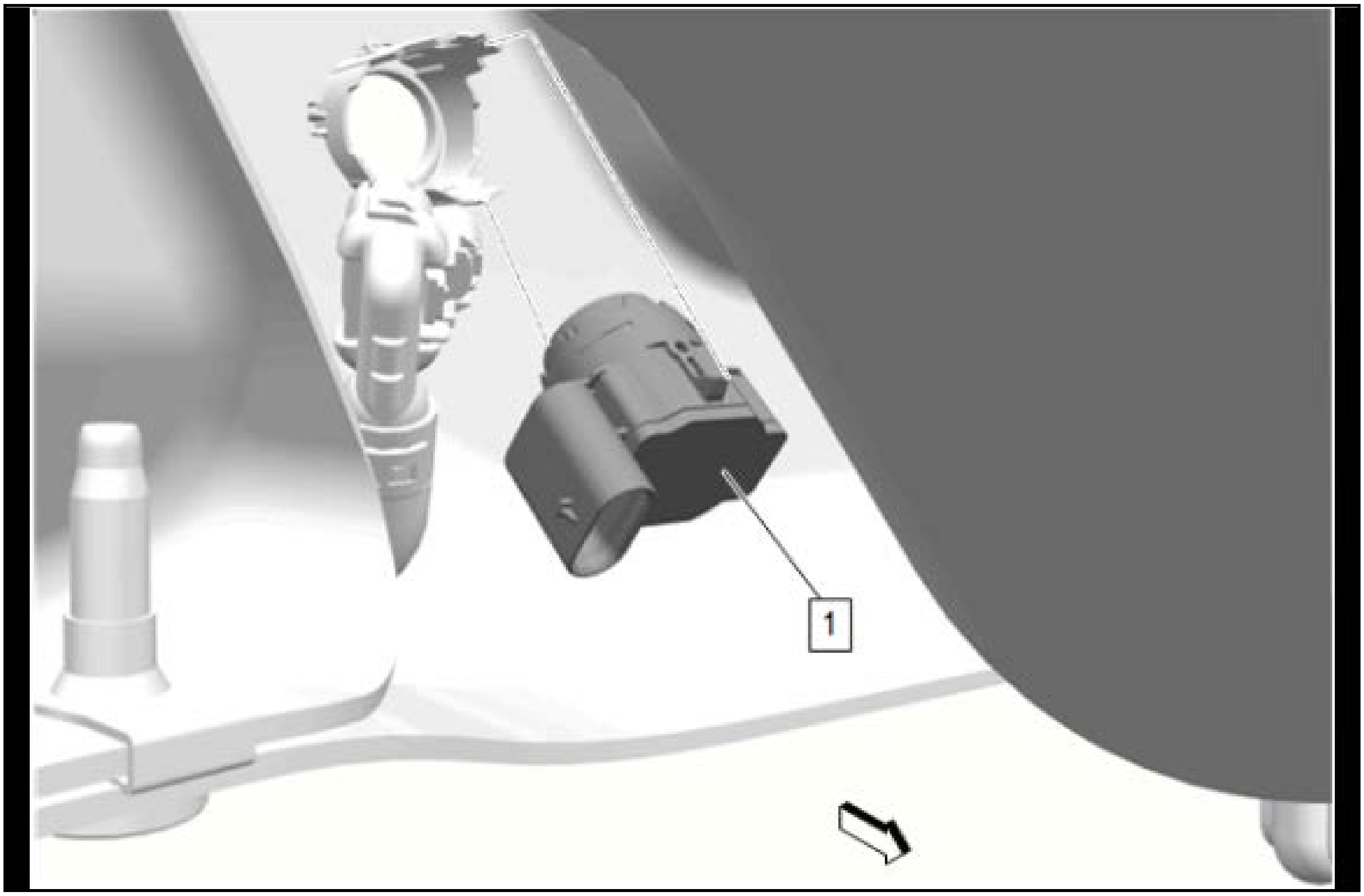


5001999

Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



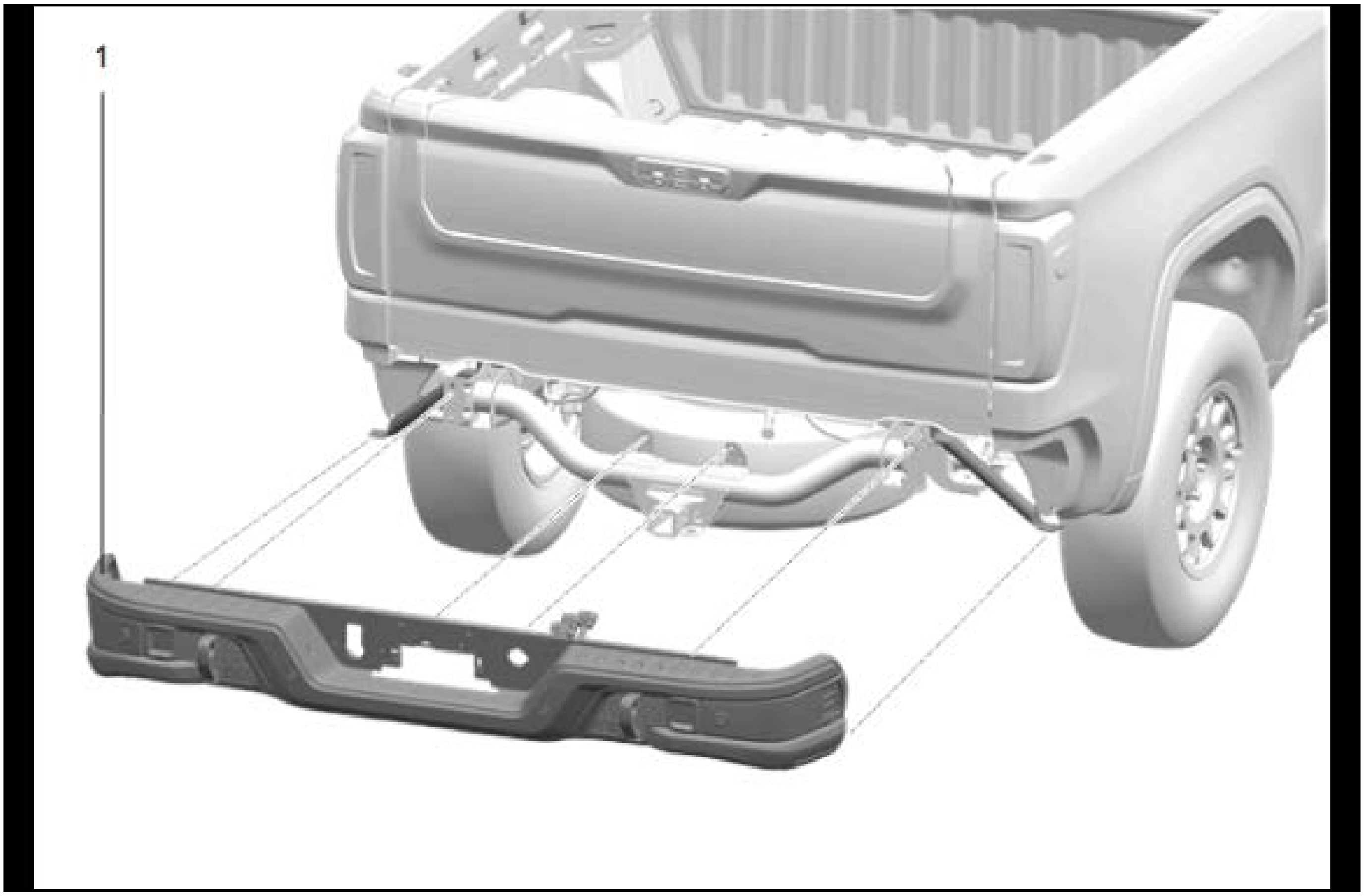
Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

1. Insert the sensor (1) into the housing.
2. Connect the electrical connector.
3. Lower the vehicle.

Rear Parking Assist Alarm Sensor Replacement - Outer

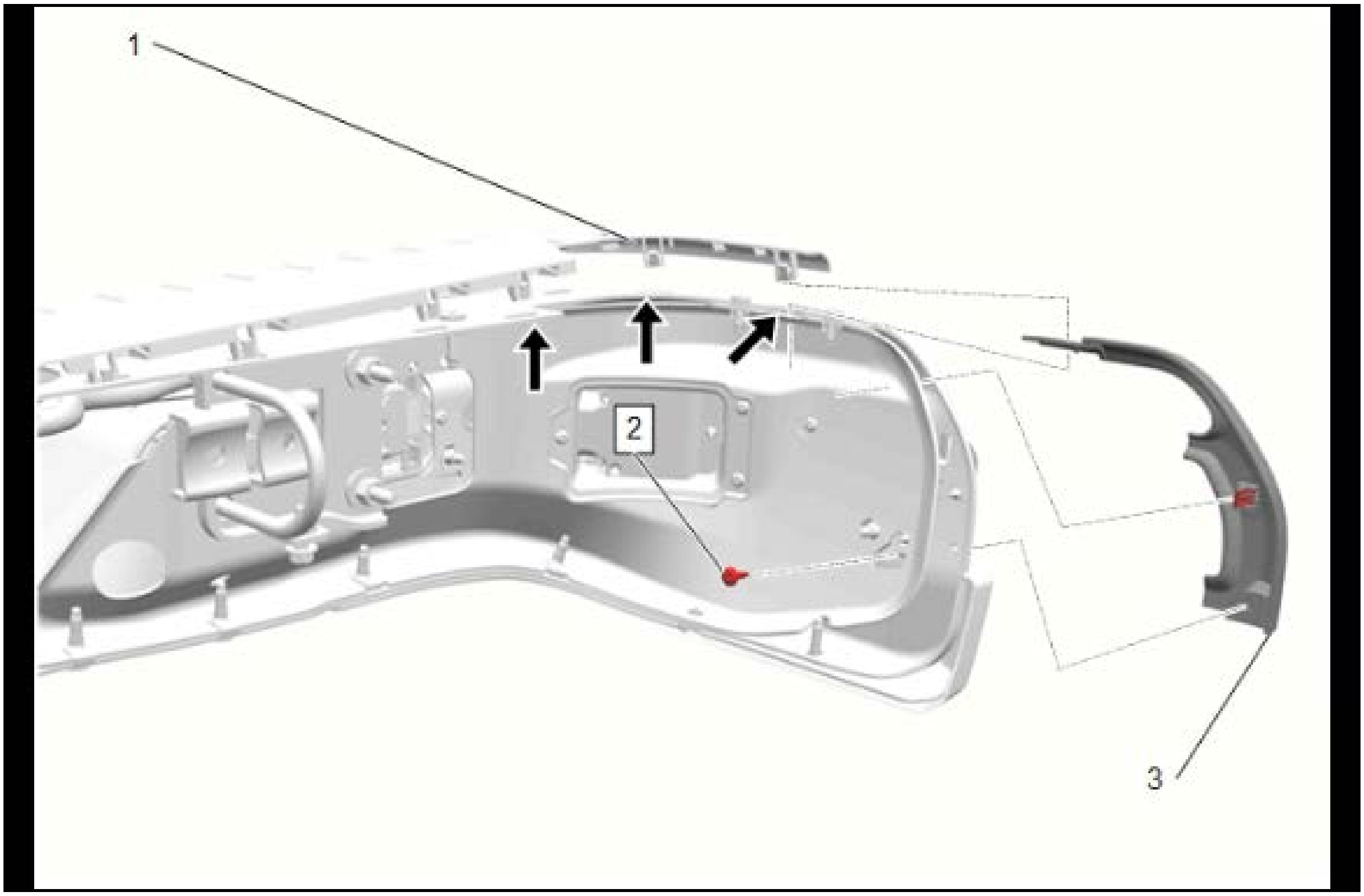
Object-ID=6125796 Owner=Hendrickson, Phil LMD=05-Mar-2023 LMB=Adamczyk, Michael

Removal Procedure



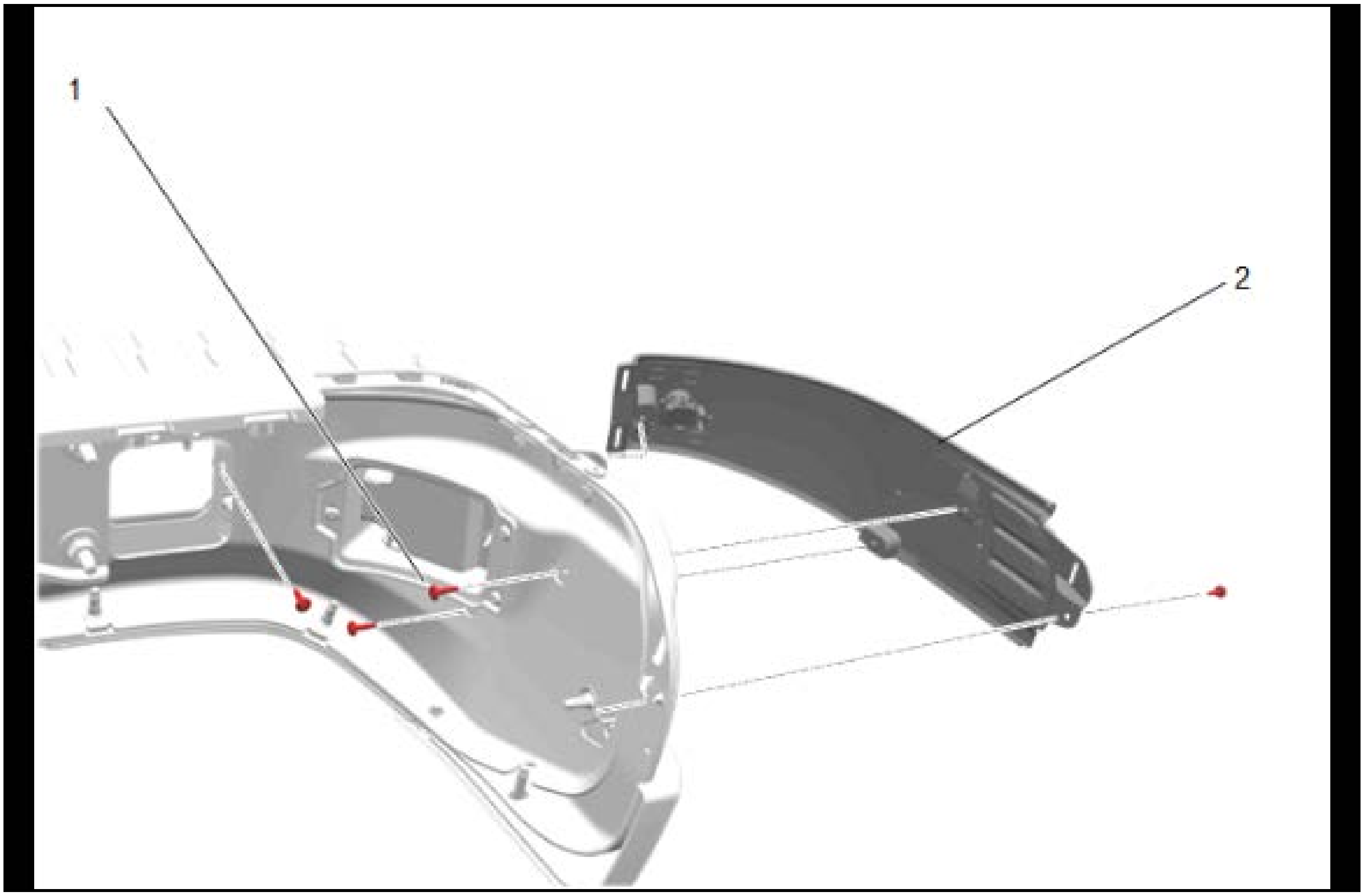
6104705

1. With the aid of assistant, remove the rear bumper impact bar. (1)

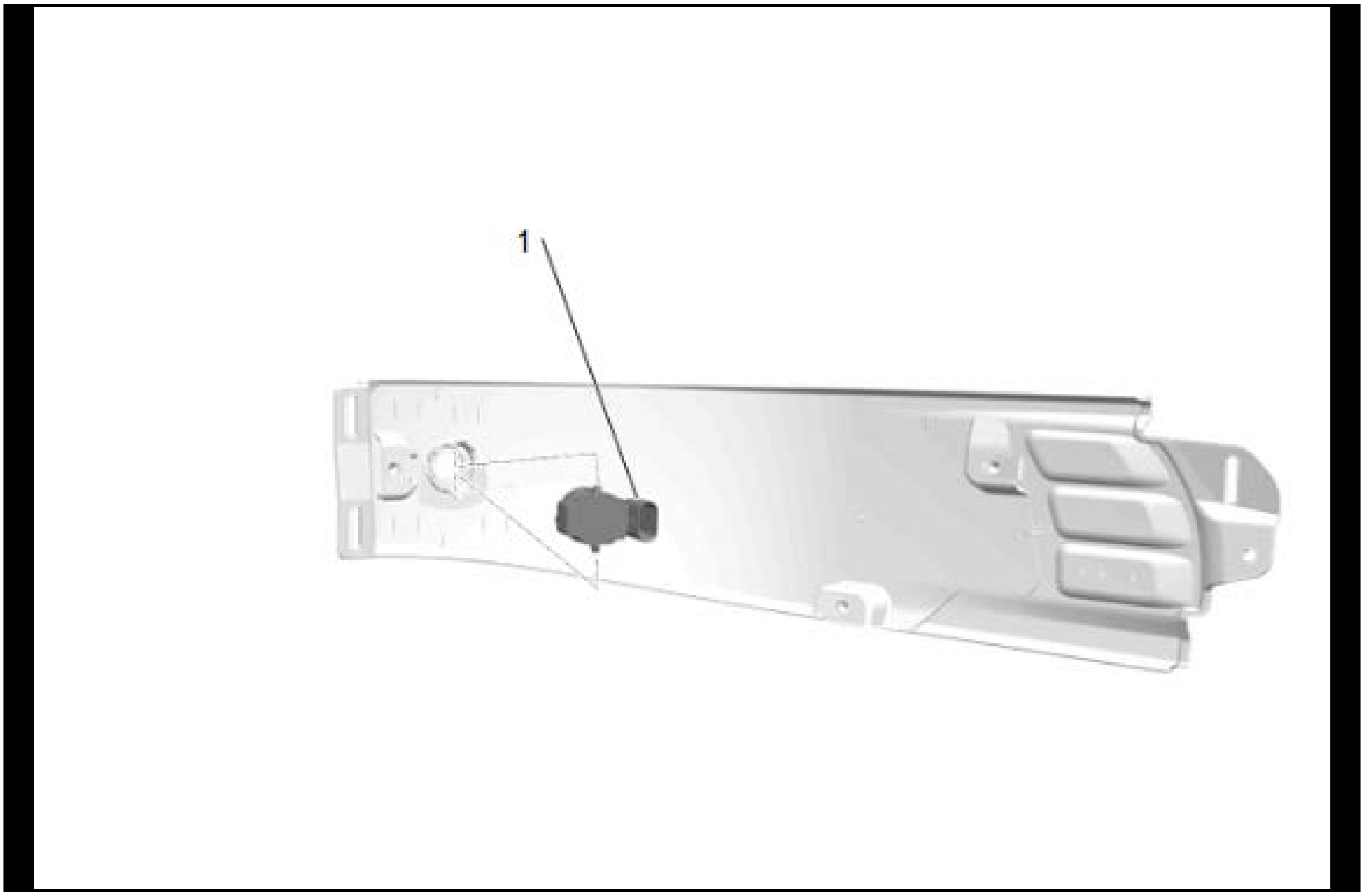


6116988

2. Using a trim type tool, release some of the outer end tabs on the upper step pad (1) and reposition.
3. Rear Bumper Fascia Bolt (2) » Remove
4. Using a flat-bladed plastic trim tool, release the retaining clip.
5. Rear Bumper Fascia Molding - Upper (3) » Remove



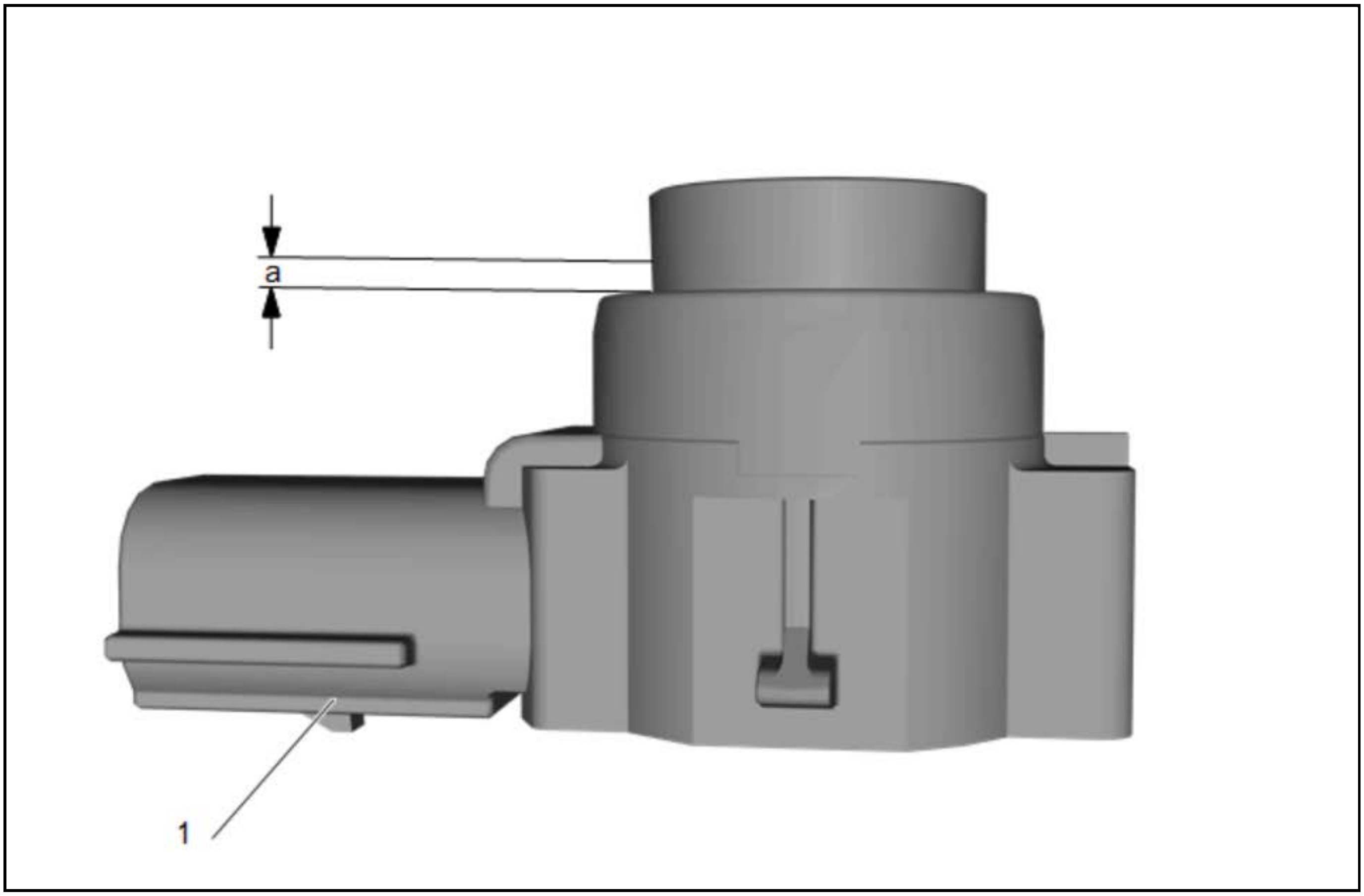
7. Rear Bumper Fascia Bolt (1) » Remove [4x]
8. Rear Bumper Fascia Molding - Outer (2) » Remove



Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

9. Rear Parking Assist Alarm Outer Sensor (1) » Remove
10. Disconnect the electrical connector.

Painting Procedure

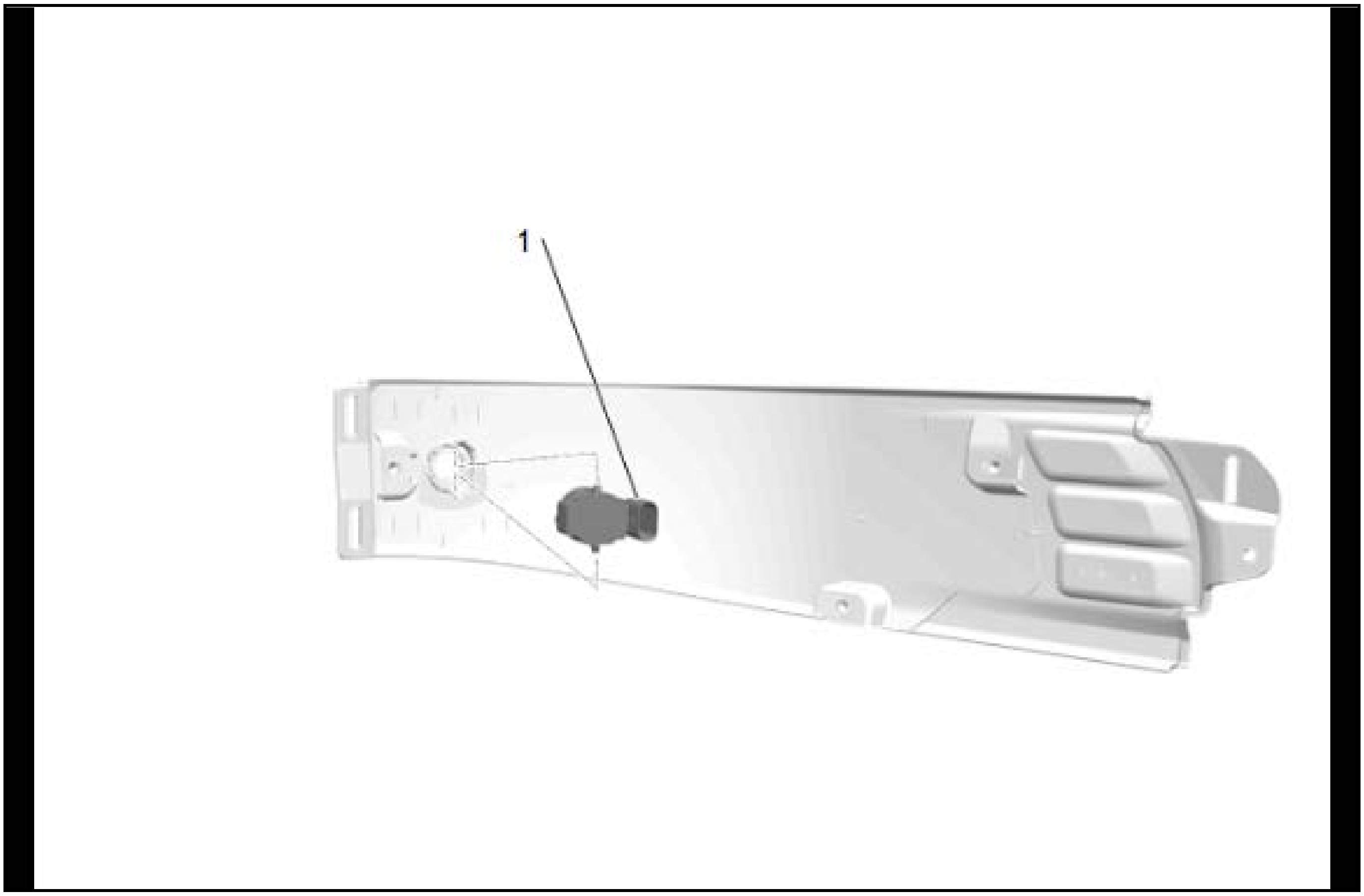


5001999

Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

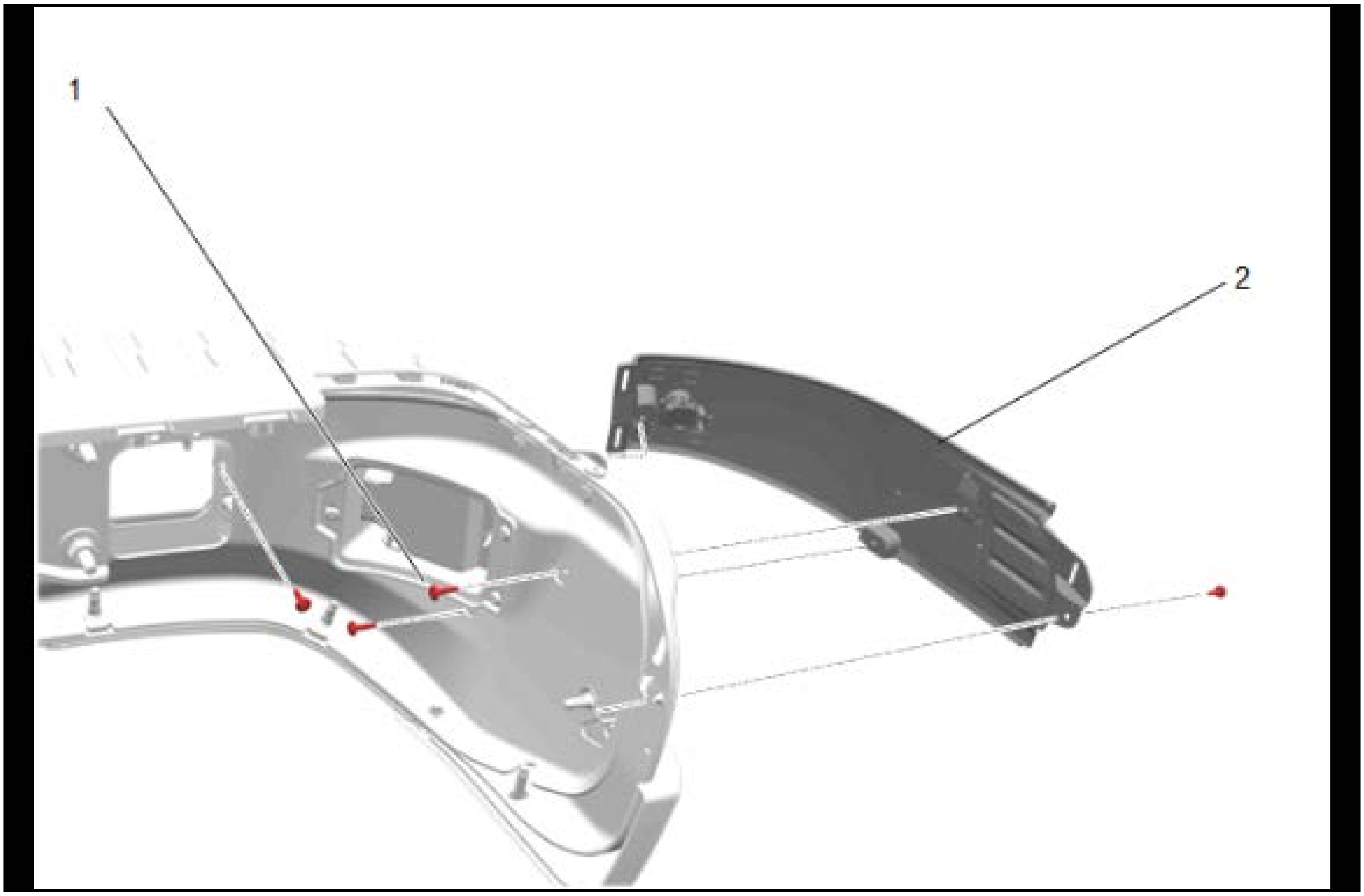
- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



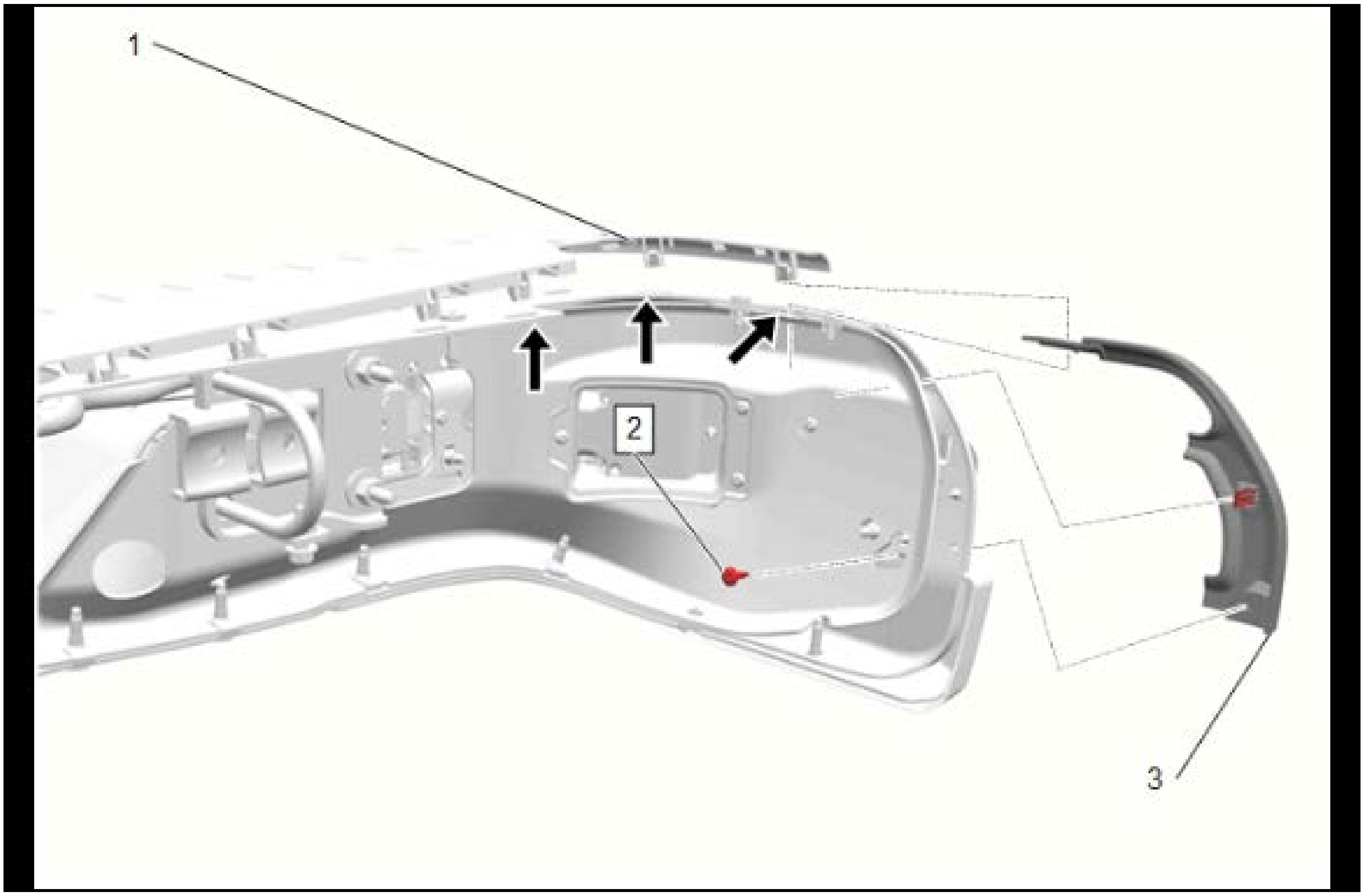
6124468

1. Rear Parking Assist Alarm Outer Sensor (1) » Install
2. Connect the electrical connector.

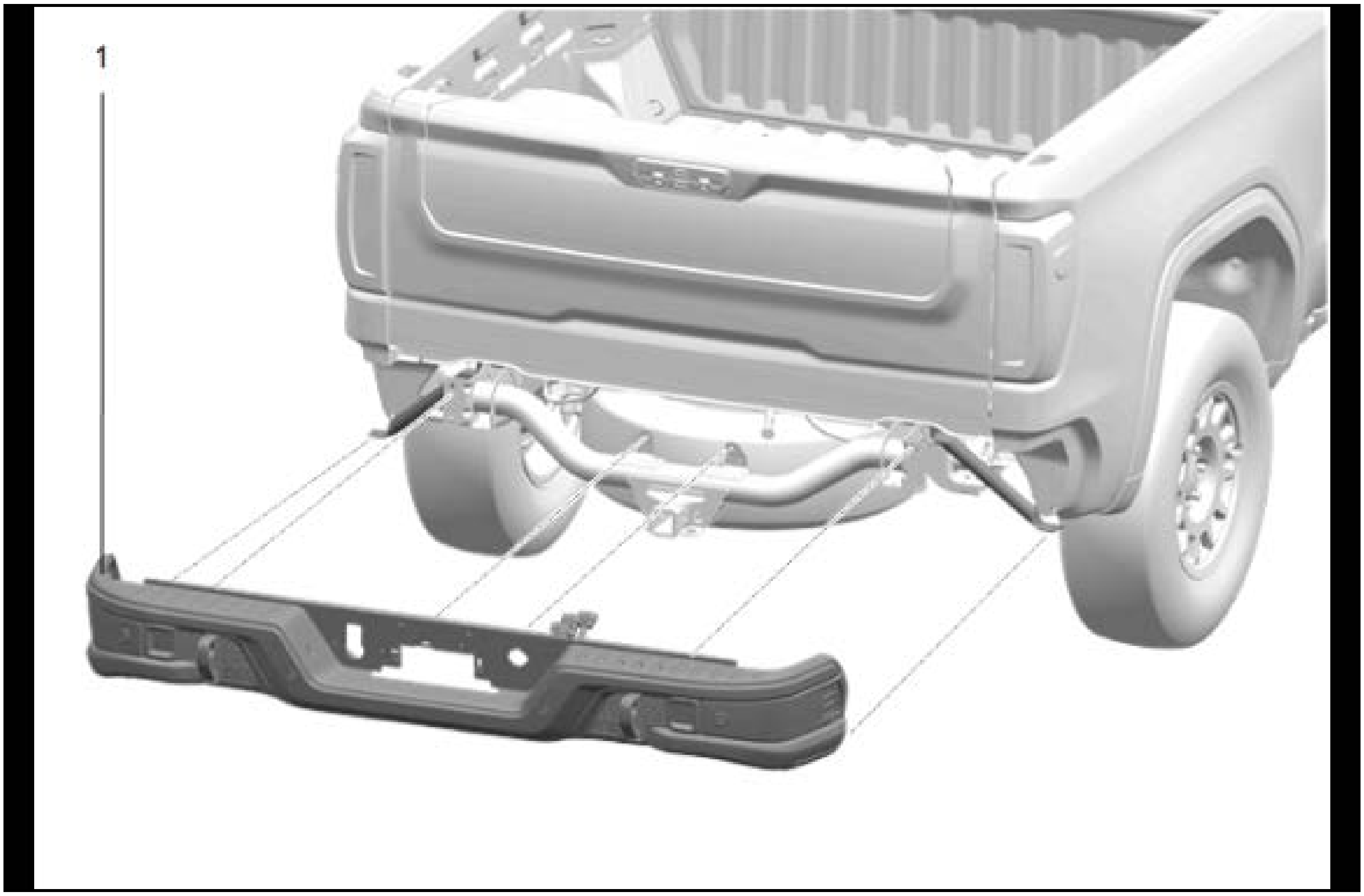


6117112

3. Rear Bumper Fascia Molding - Outer (2) » Install
4. Rear Bumper Fascia Bolt (1) » Install and tighten [4x]



5. Rear Bumper Fascia Molding - Upper (3) » Install
6. Rear Bumper Fascia Bolt (2) » Install and tighten
7. Rear Bumper Fascia Step Pad (1) » Install



6104705

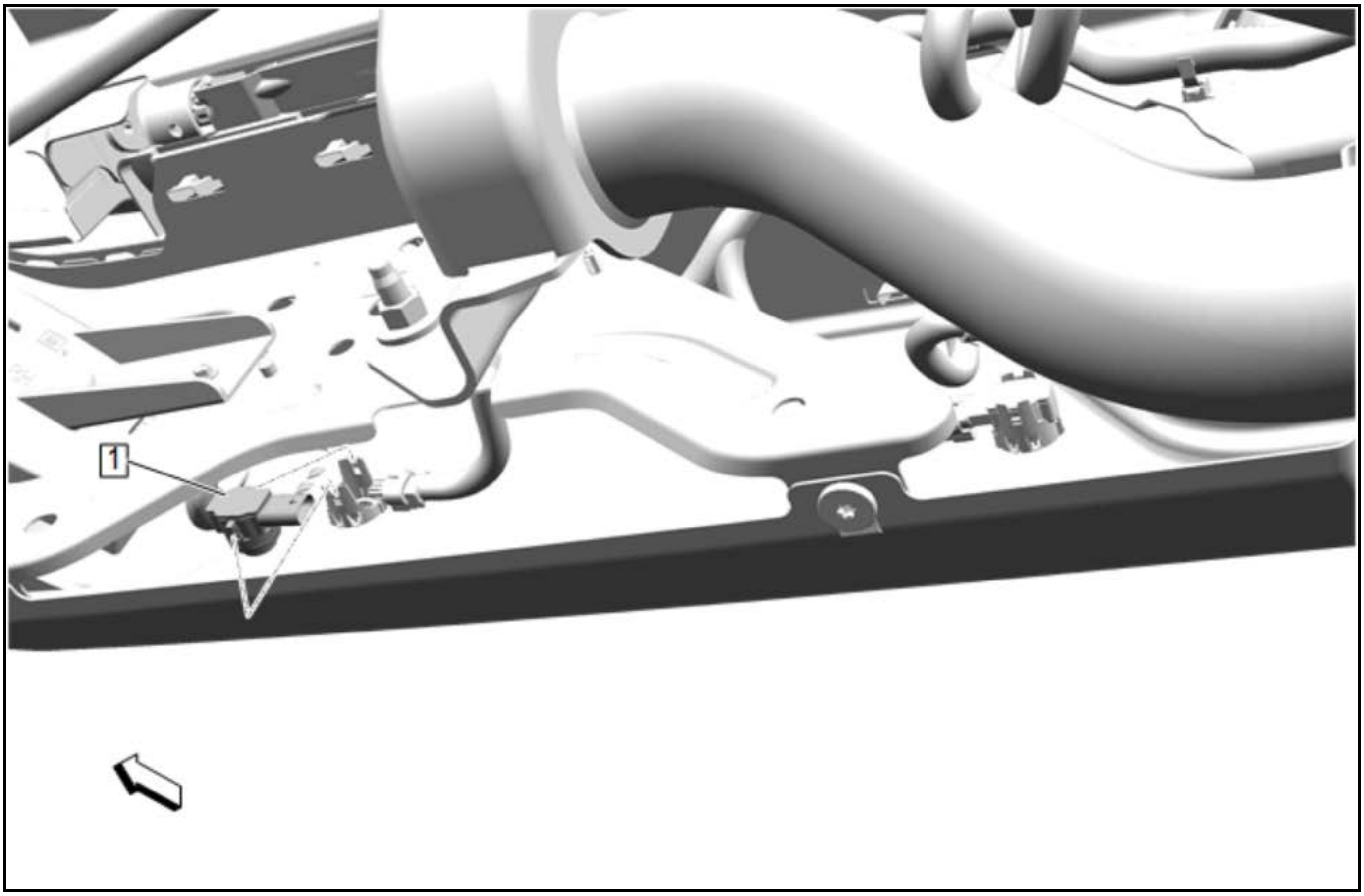
8. With the aid of assistant, install the rear bumper impact bar. (1)

Rear Parking Assist Alarm Sensor Bracket Replacement

Object-ID=5783030 Owner=Welsh, Cody LMD=24-Mar-2021 LMB=Welsh, Cody

Removal Procedure

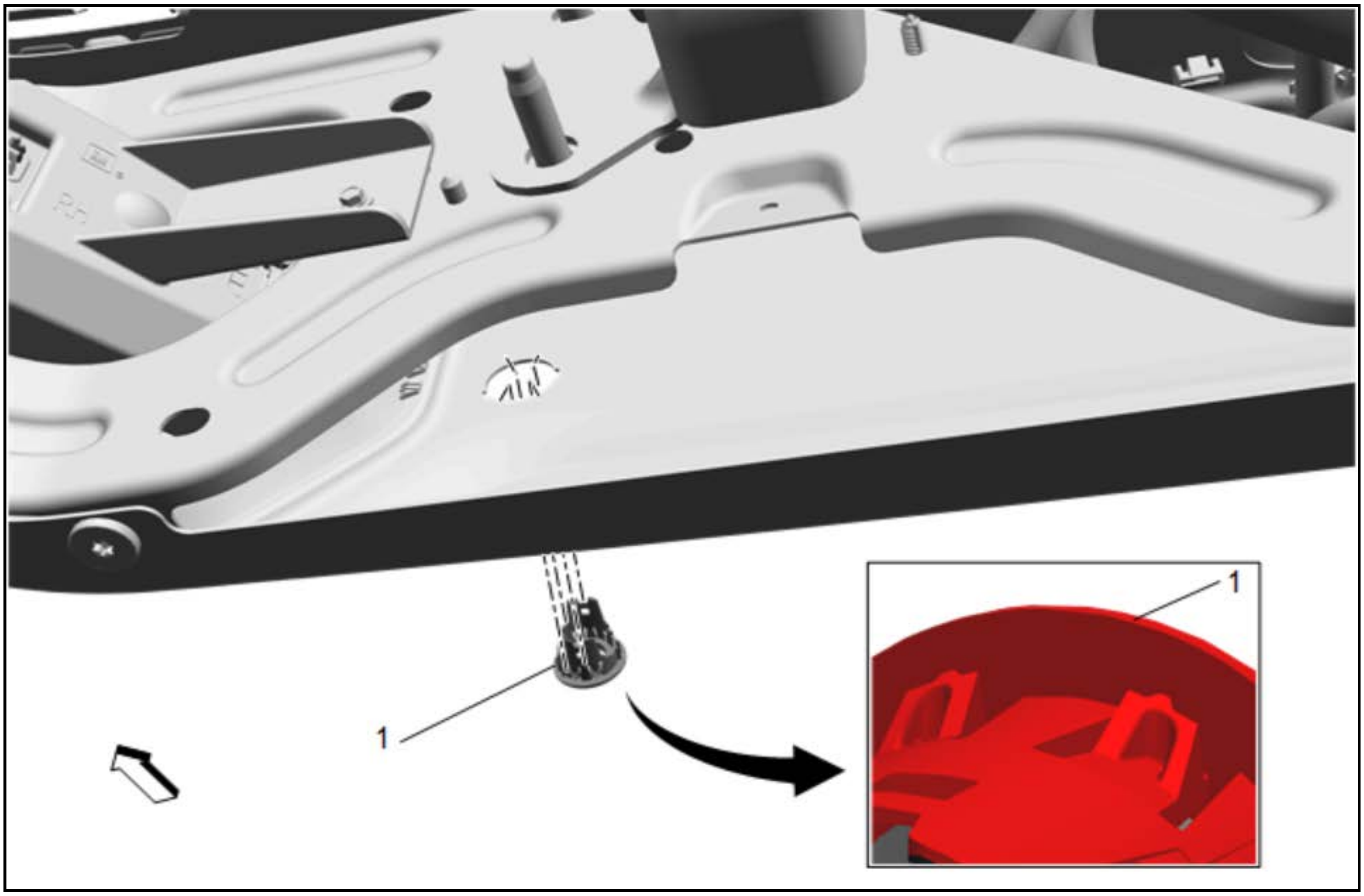
1. Raise and support the vehicle.



5256072

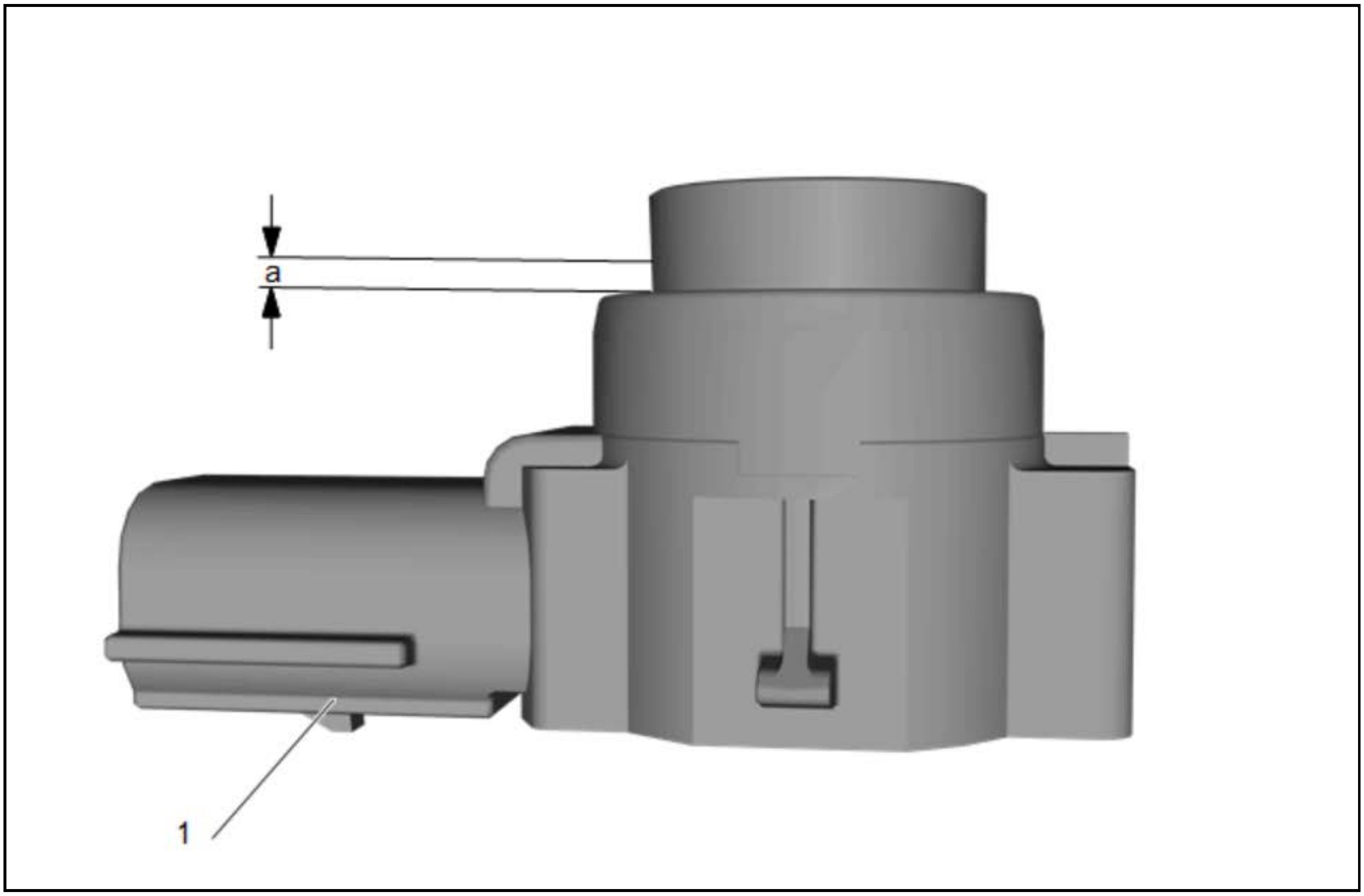
Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

3. Lift the locking tabs on the housing and remove the object sensor (1).
4. Disconnect the electrical connector.



5. Using a trim type tool, release the 4 tabs and remove the rear parking assist alarm sensor bracket (1) .

Painting Procedure

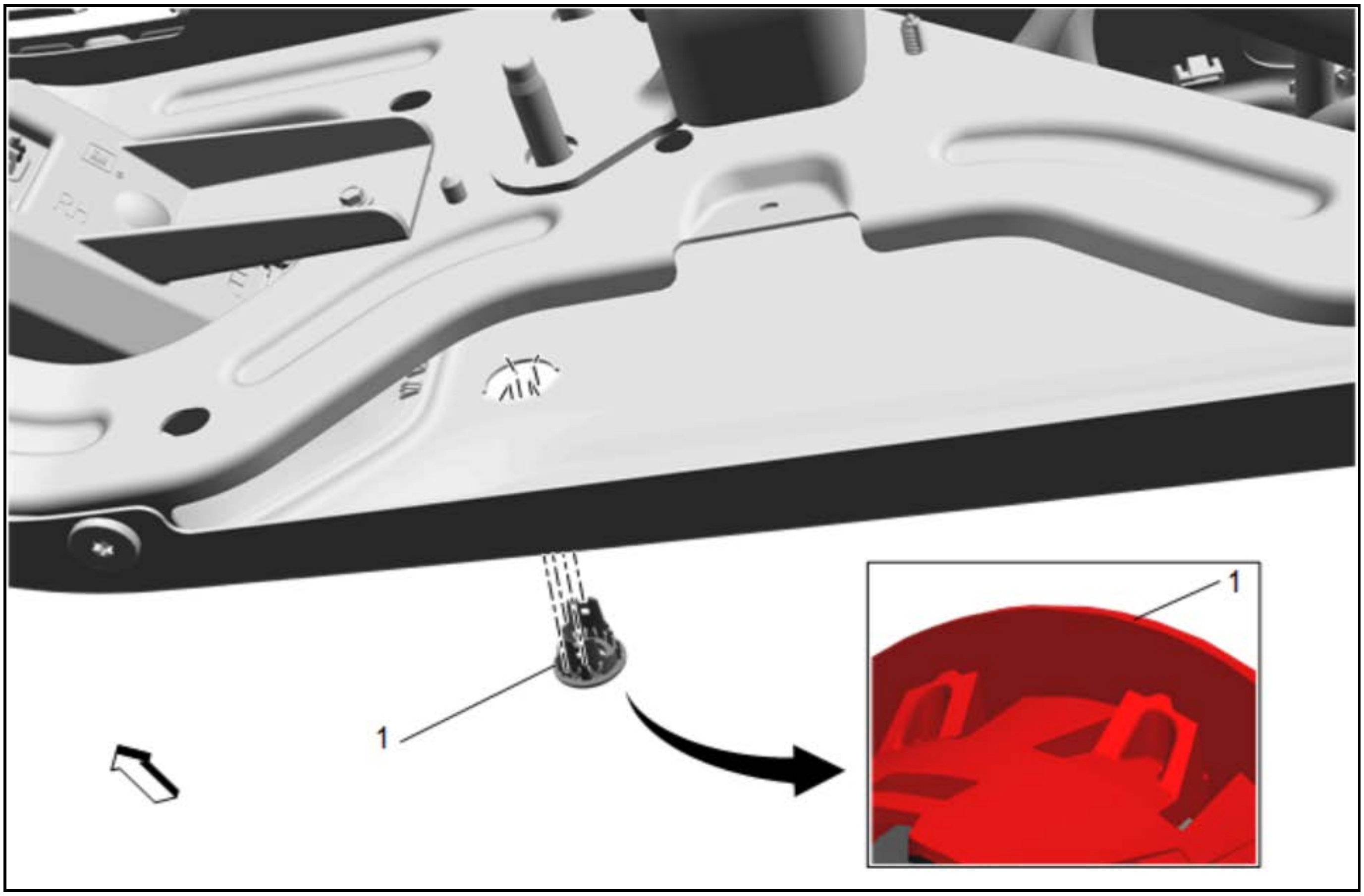


5001999

Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

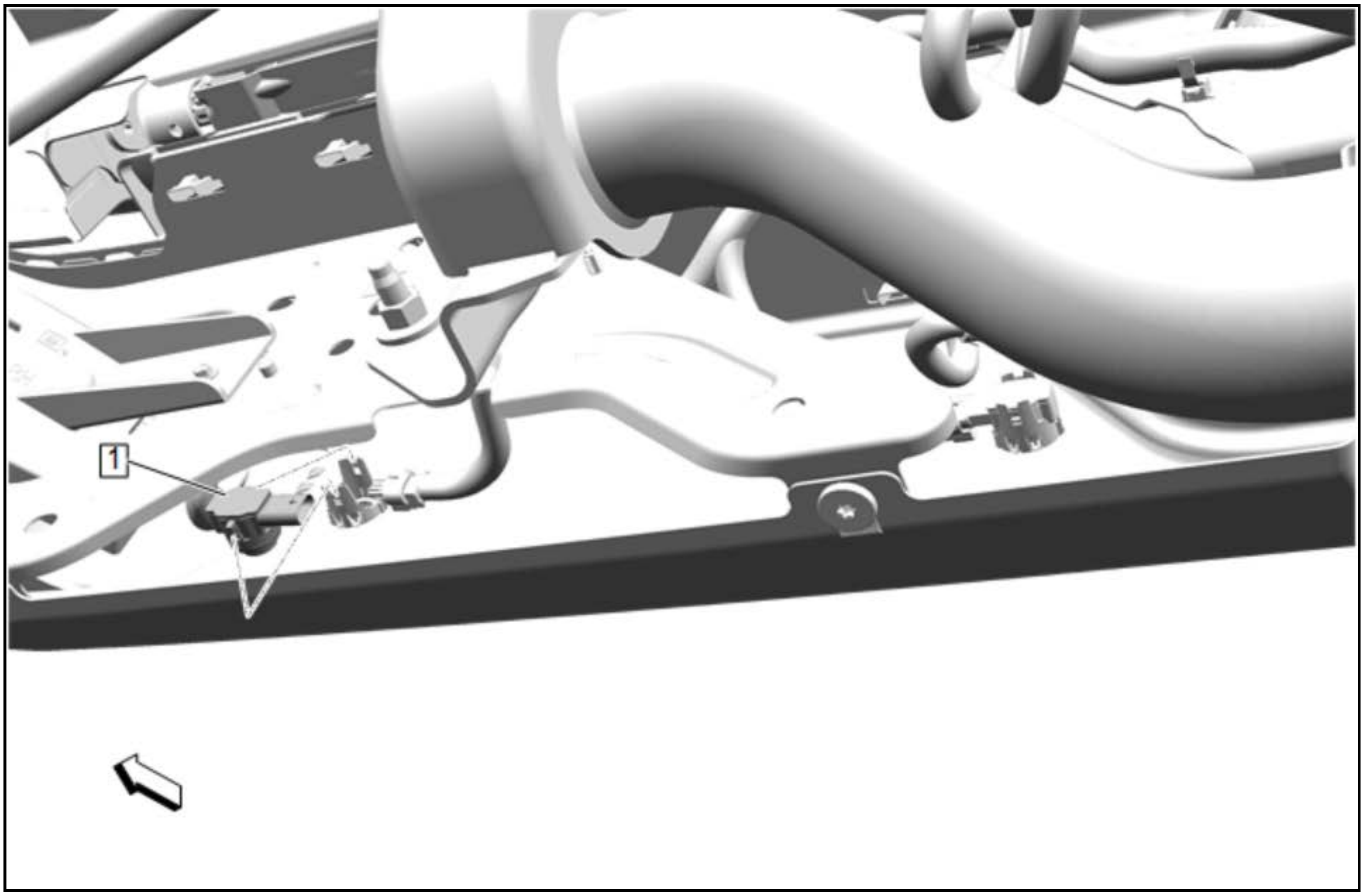
- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



5034885

1. Rear Parking Assist Alarm Sensor Bracket (1) » Install



5256072

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

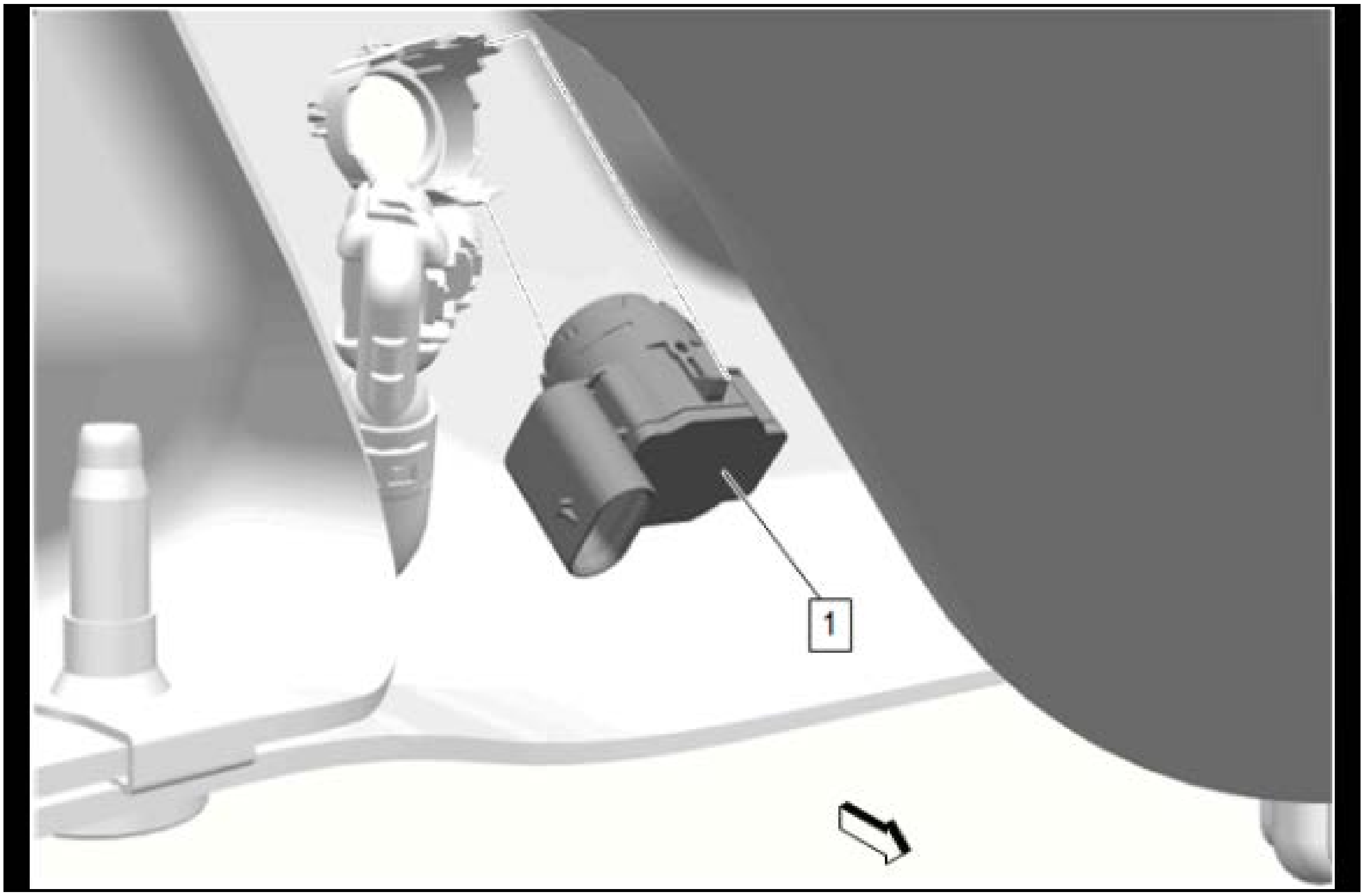
2. Insert the sensor (1) into the housing.
3. Connect the electrical connector.
4. Lower the vehicle.

Rear Parking Assist Alarm Sensor Bracket Replacement

Object-ID=6286452 Owner=Hendrickson, Phil LMD=08-Mar-2023 LMB=Hendrickson, Phil

Removal Procedure

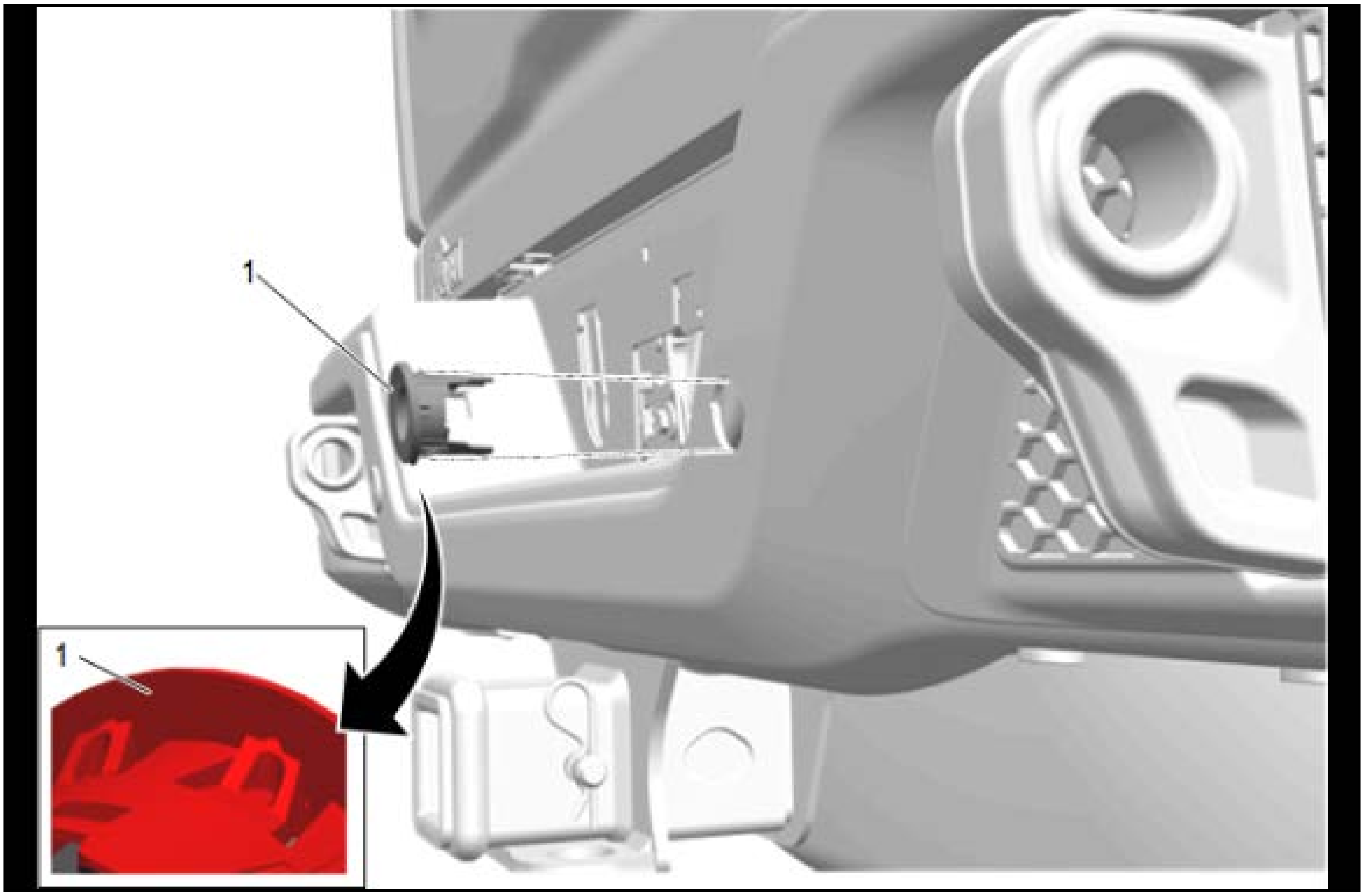
1. Raise and support the vehicle.



6286406

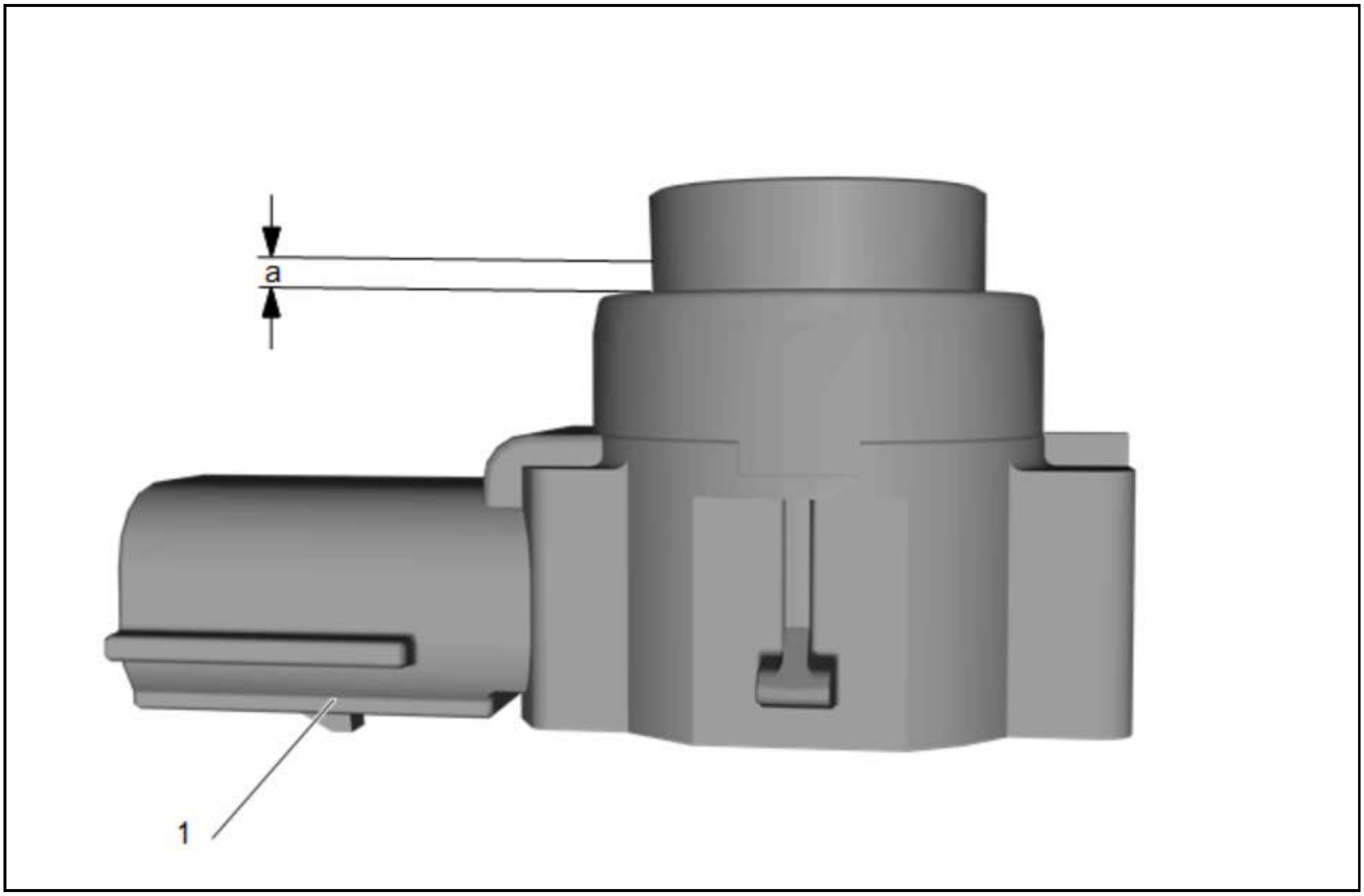
Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

3. Lift the locking tabs on the housing and remove the object sensor (1).
4. Disconnect the electrical connector.



5. Using a suitable plastic trim tool, release the 4 tabs and remove the rear parking assist alarm sensor bracket (1) .

Painting Procedure

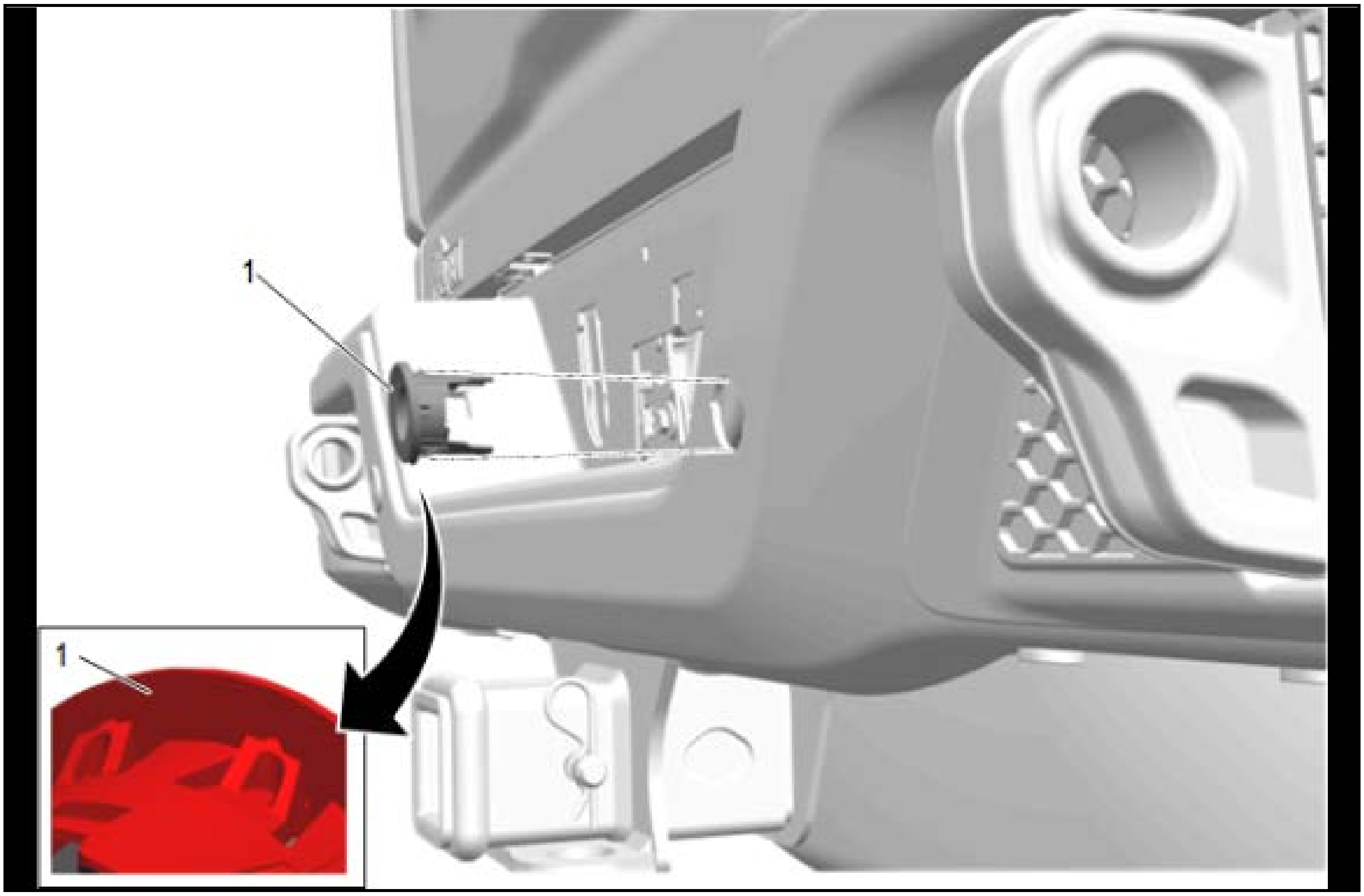


5001999

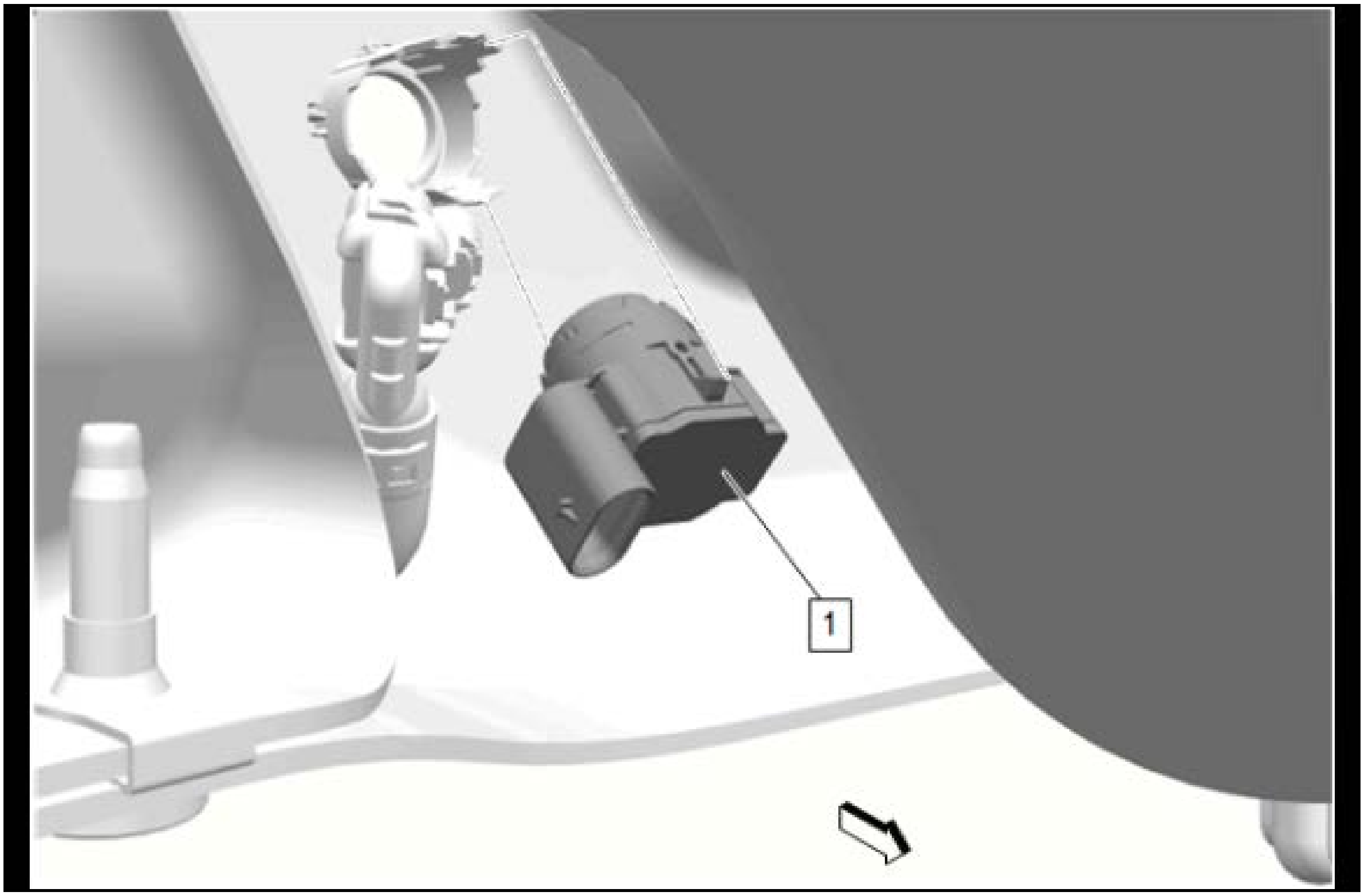
Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



1. Rear Parking Assist Alarm Sensor Bracket (1) » Install



6286406

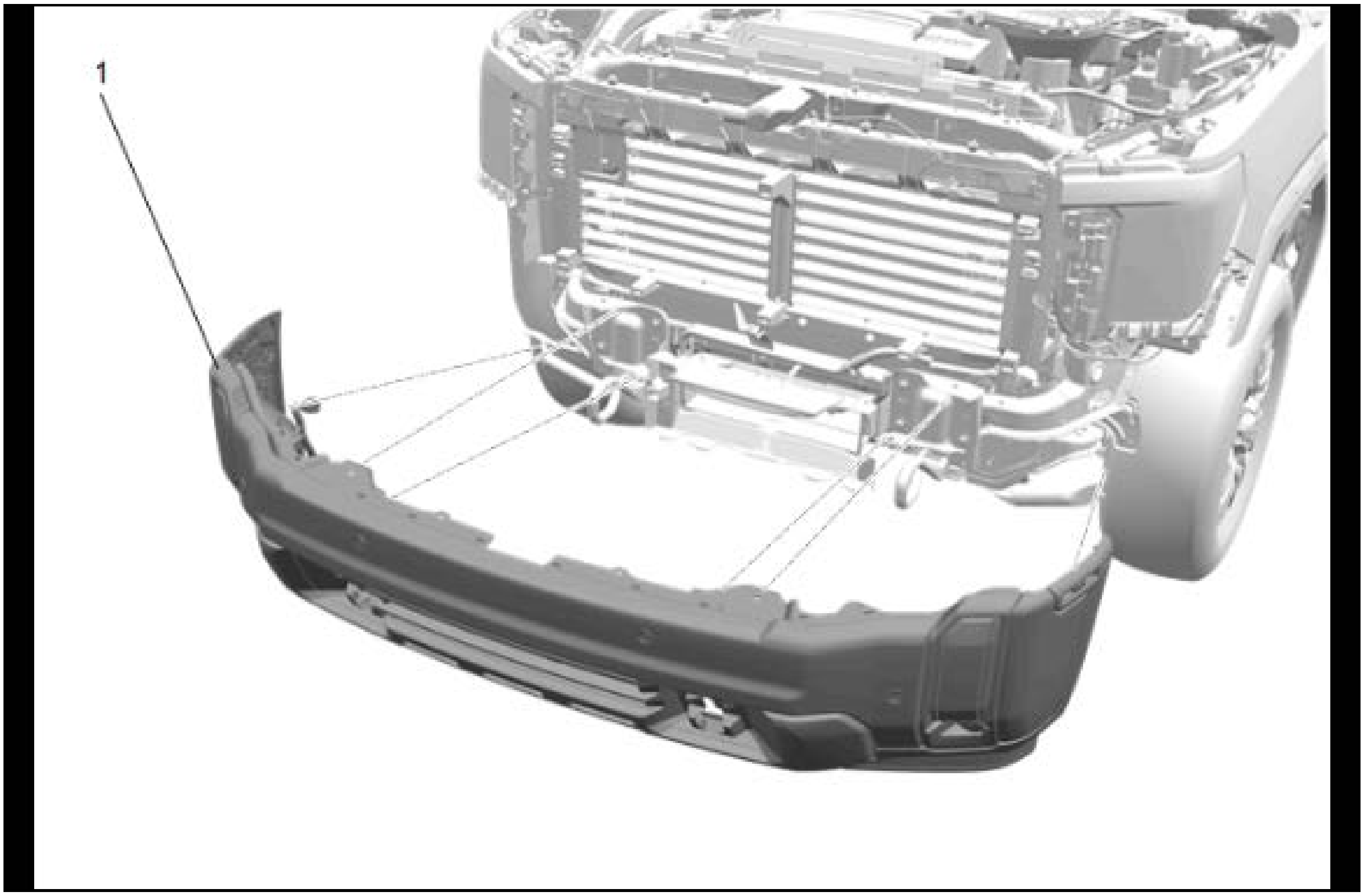
Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

2. Insert the sensor (1) into the housing.
3. Connect the electrical connector.
4. Remove the support and lower the vehicle.

Parking Assist Alarm Sensor Ring Replacement - Front

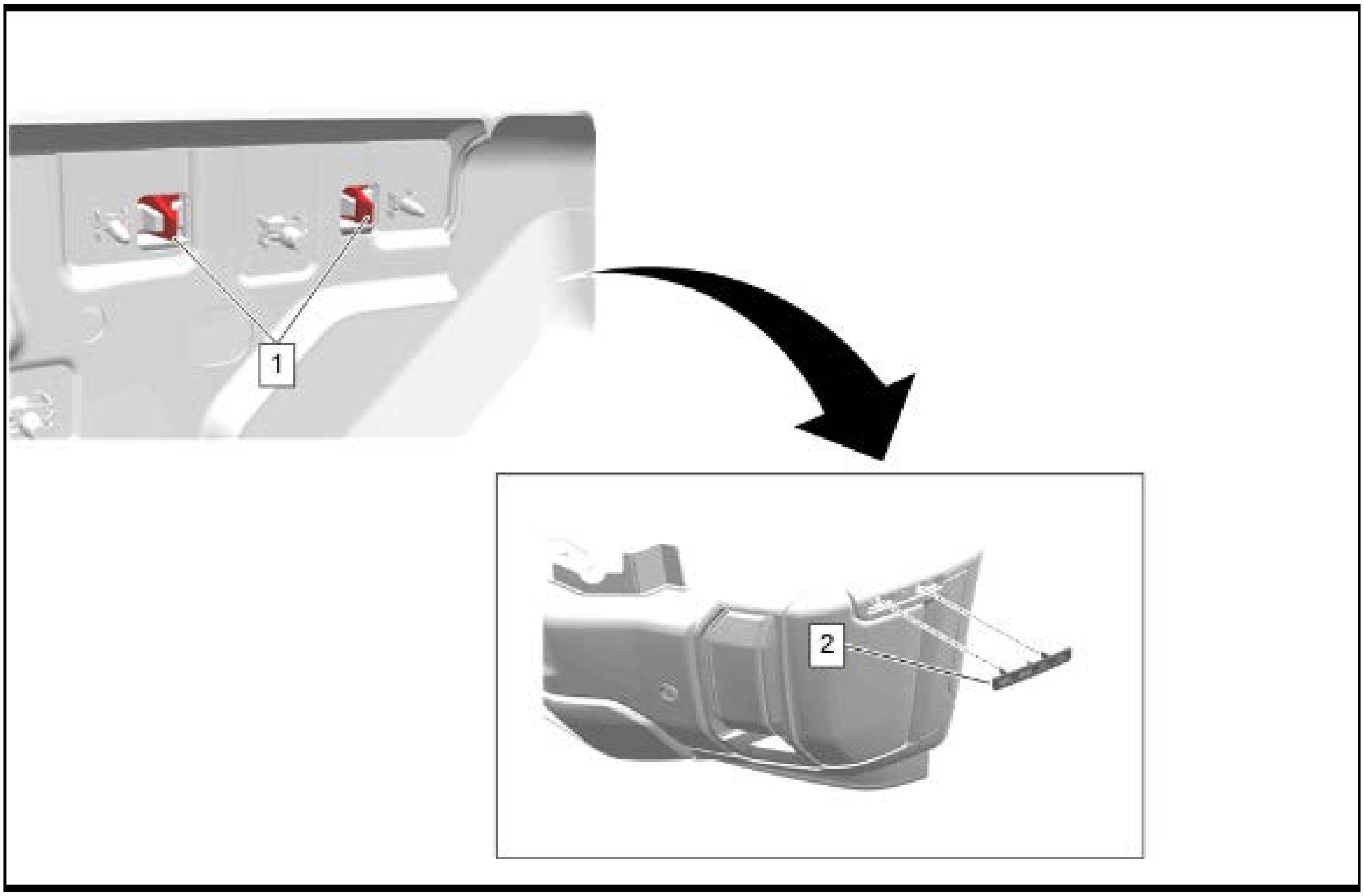
Object-ID=6286999 Owner=Hendrickson, Phil LMD=31-Mar-2023 LMB=Gonzales, Isaiah

Removal Procedure

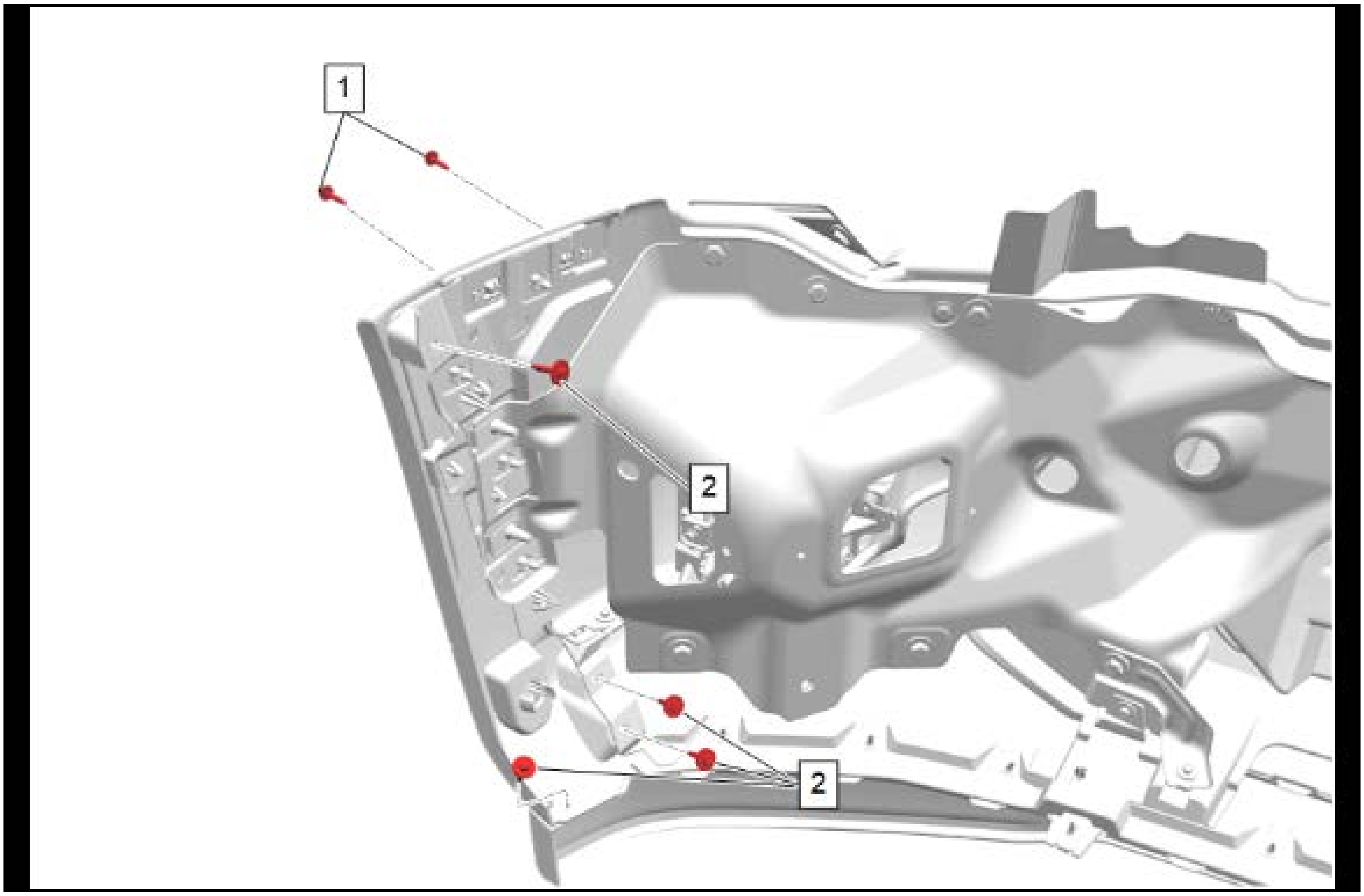


6259437

1. With the aid of an assistant, remove the impact bar. (1)

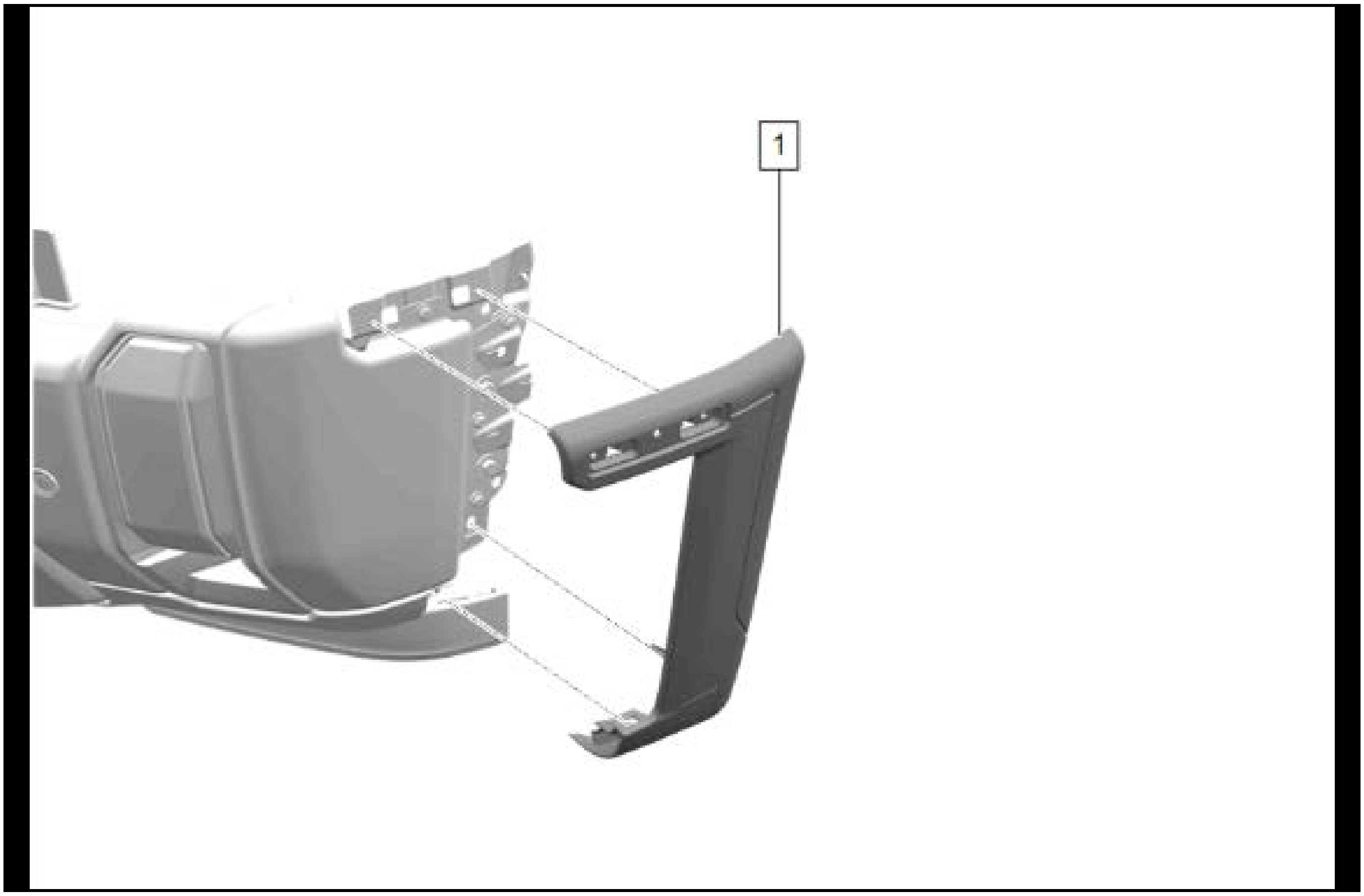


2. Using a suitable plastic trim tool, release the retaining tabs. (1)
3. Front Bumper Fascia Emblem (2) » Remove

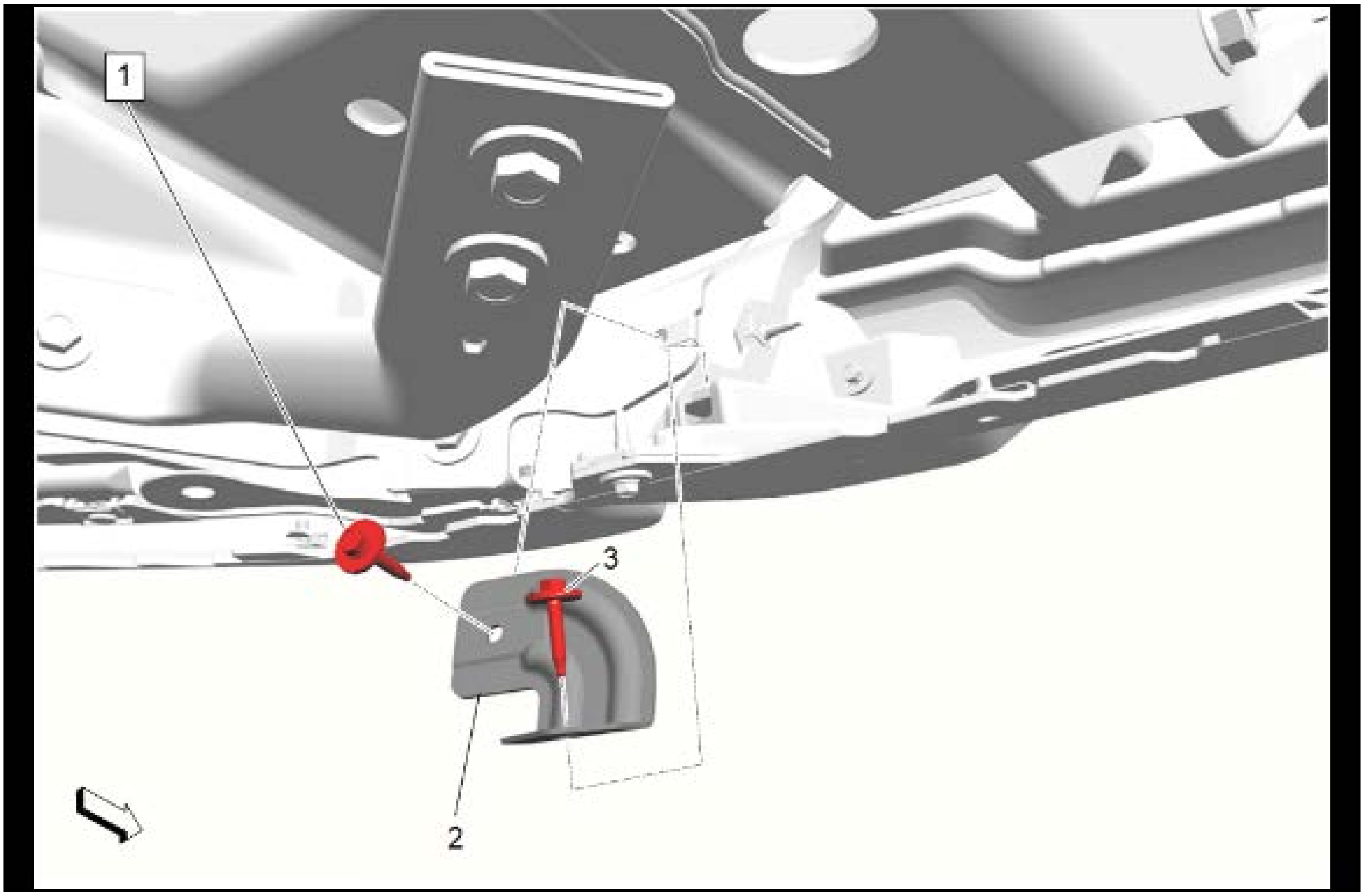


6215153

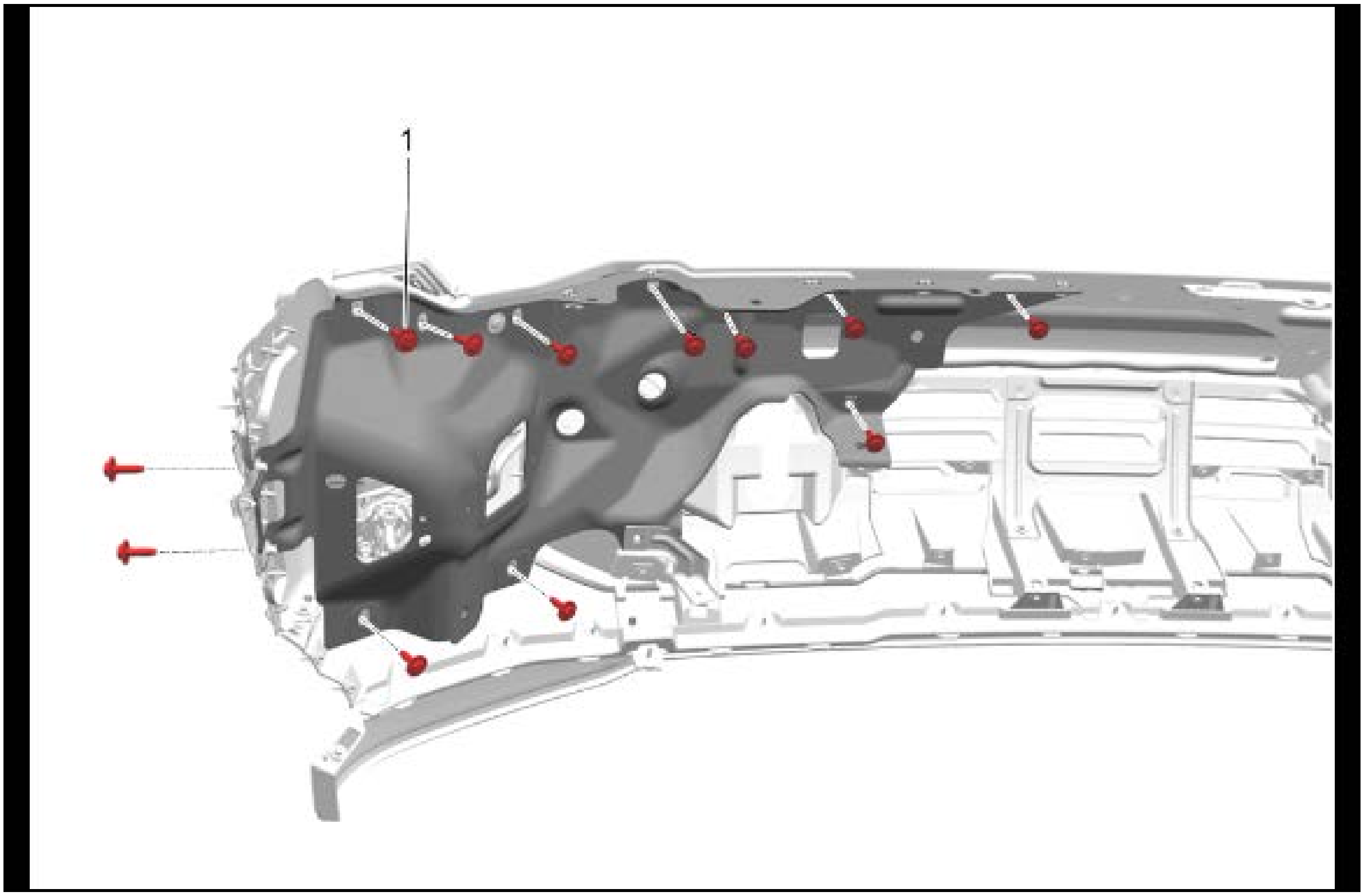
4. Front Fog Lamp Bolt (1) » Remove [2x]
5. Front Bumper Fascia Bolt (2) » Remove [4x]



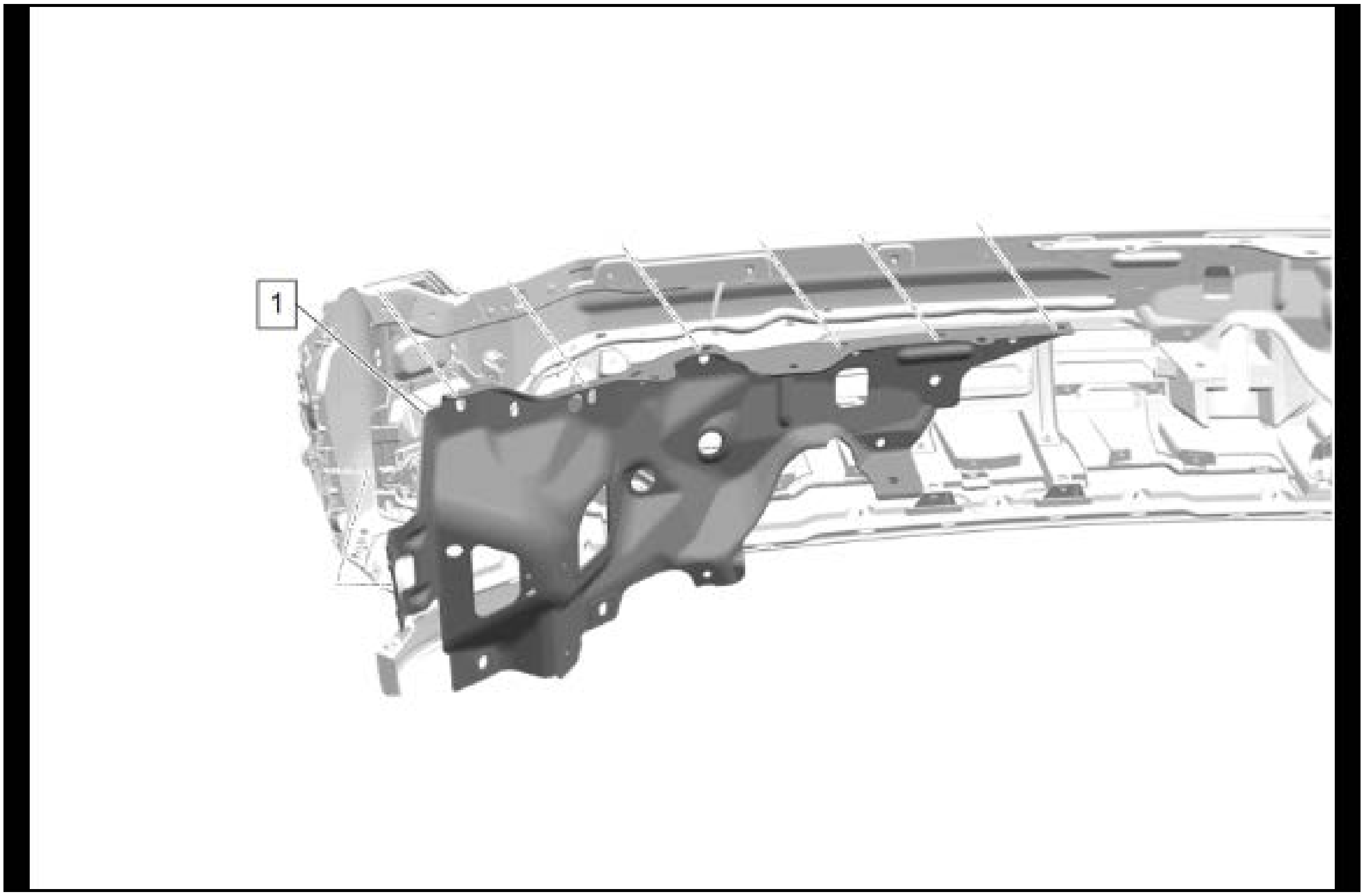
6. Front Bumper Fascia Molding (1) » Remove



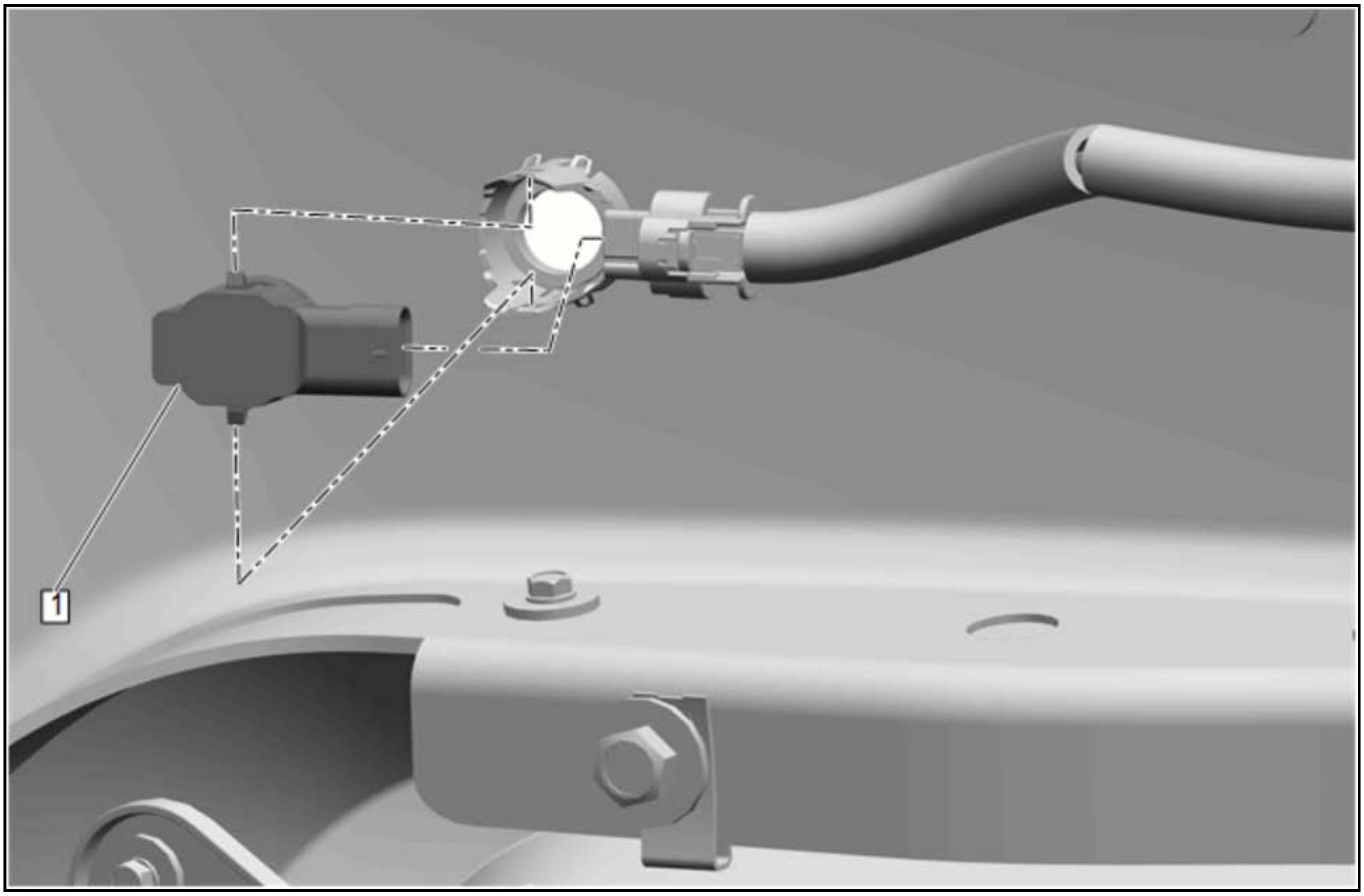
7. Front Bumper Lower Impact Bar Bolt (1) » Remove
8. Front Bumper Fascia Bolt (3) » Remove
9. Front Bumper Fascia Outer Bracket (2) » Remove



10. Front Bumper Impact Bar Bolt (1) » Remove [12x]



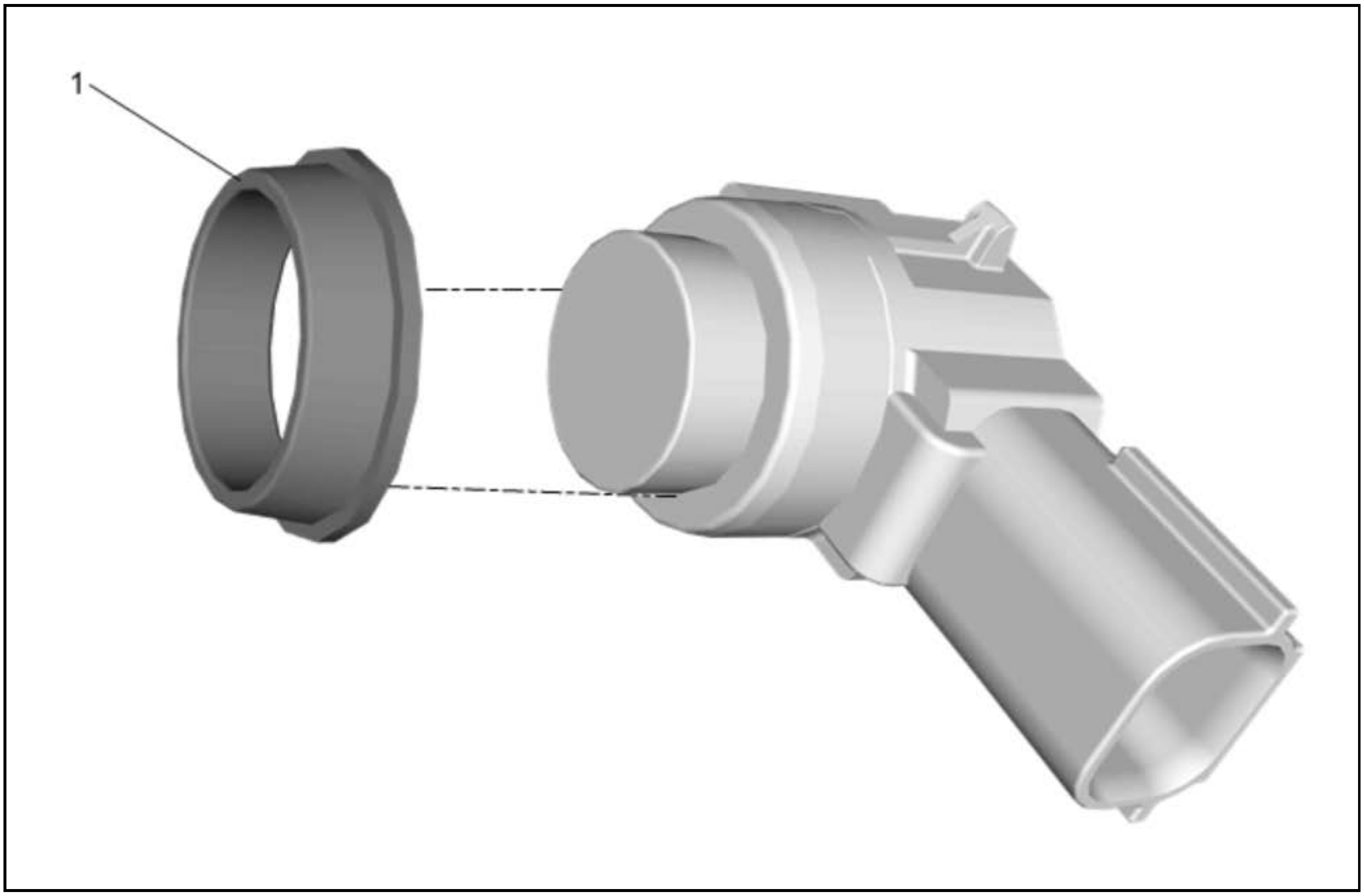
11. Disconnect the wiring harness retainers.
12. Front Bumper Impact Bar Bracket (1) » Remove



5034827

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

14. Lift the locking tabs on the housing and remove the object sensor (1).
15. Disconnect the electrical connector.

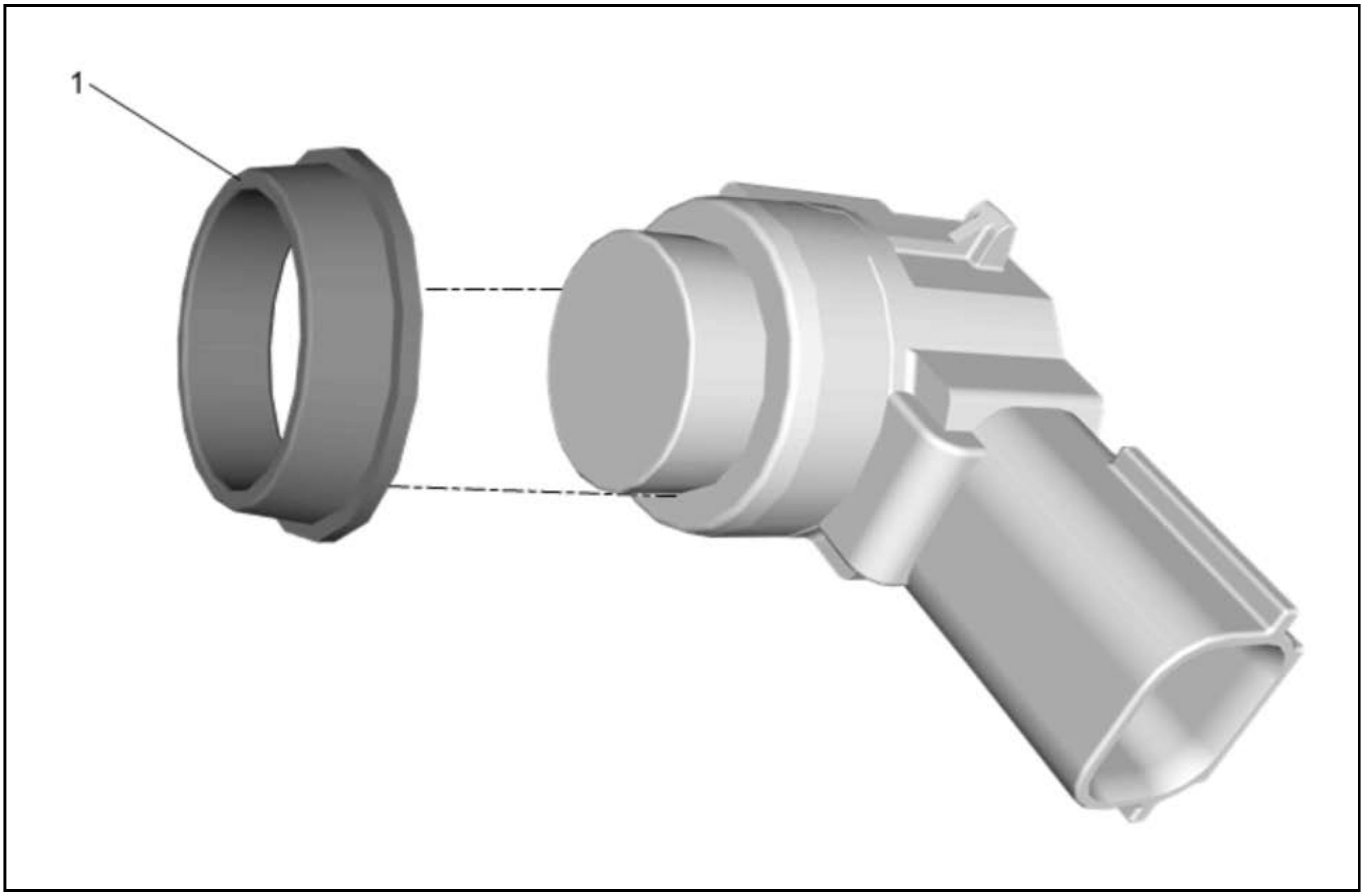


4256655

Note: If the sensor ring has any type of damage it must be replaced.

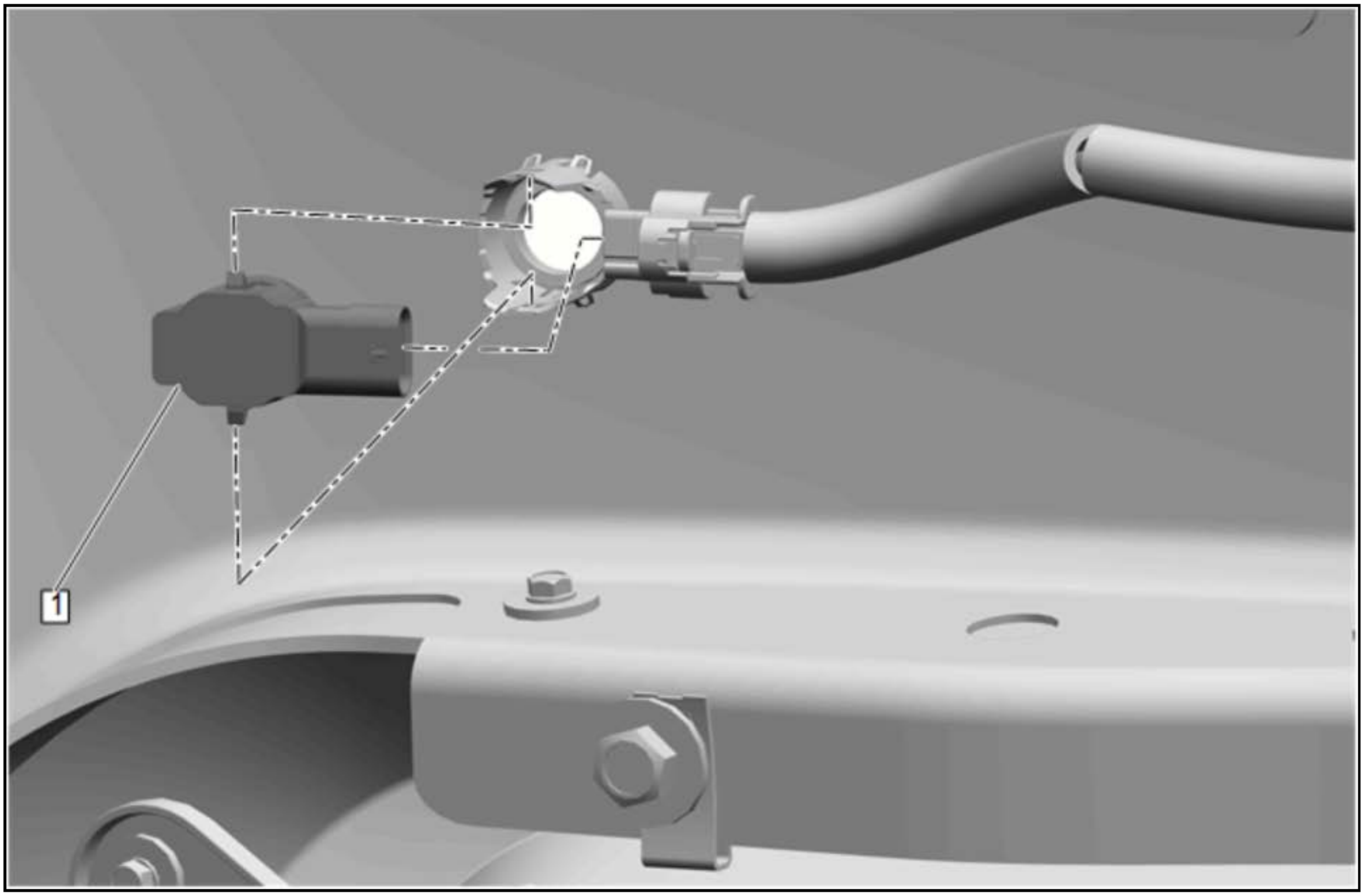
16. Parking Assist Alarm Sensor Ring (1) » Remove

Installation Procedure



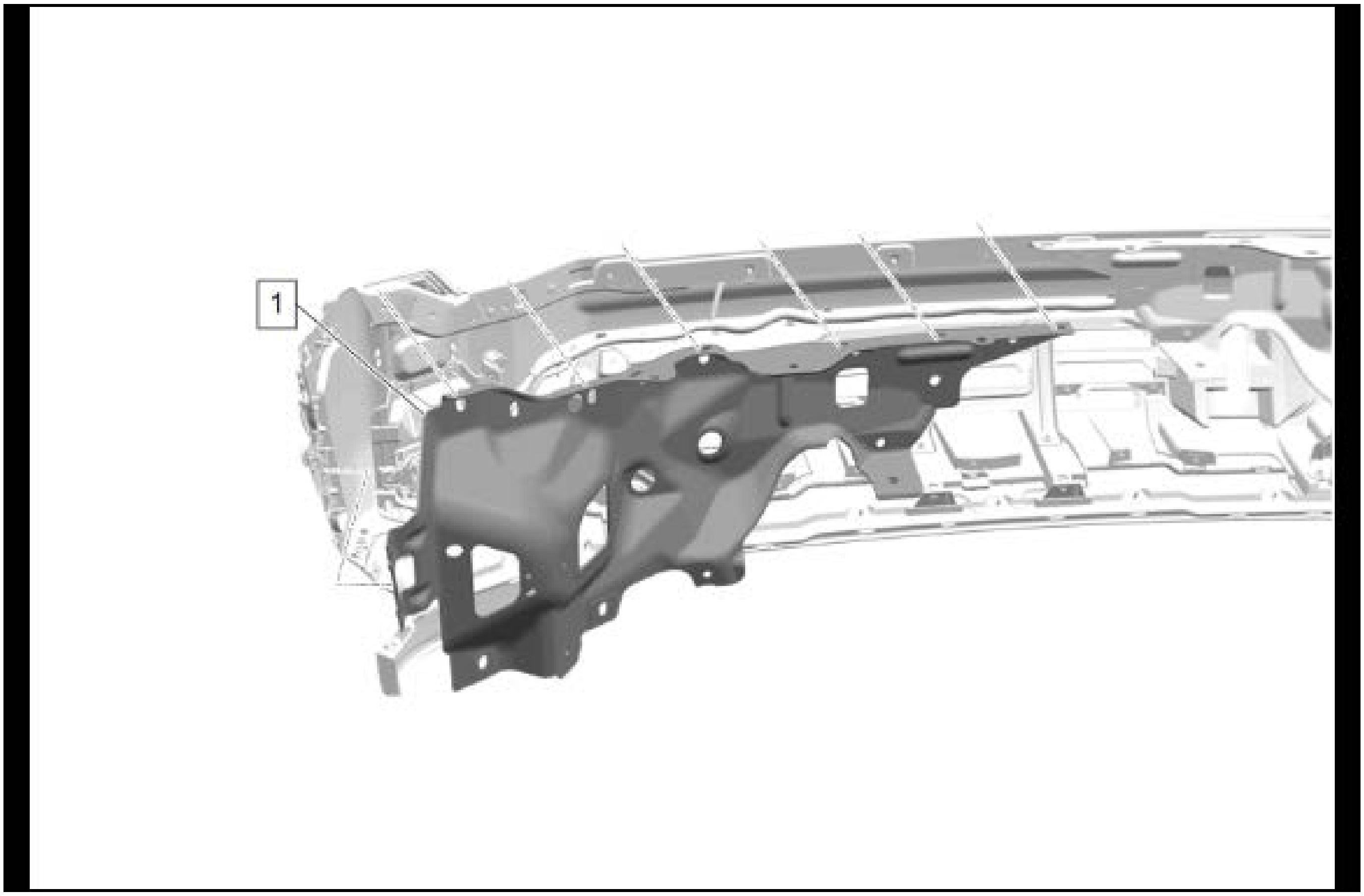
Note: If the sensor ring has any type of damage it must be replaced.

1. Parking Assist Alarm Sensor Ring - Front (1) » Install

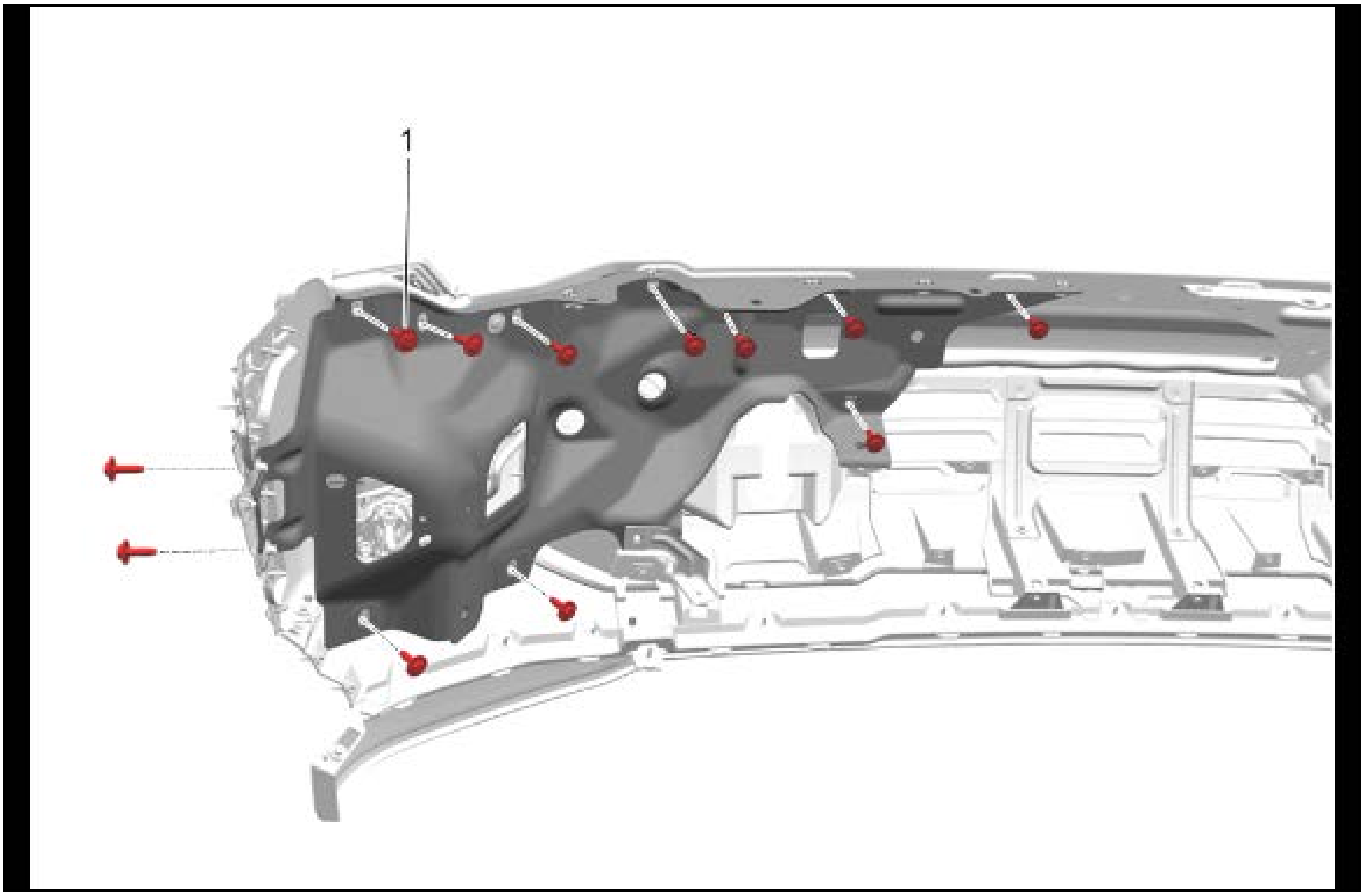


Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

2. Insert the sensor (1) into the housing.
3. Connect the electrical connector.

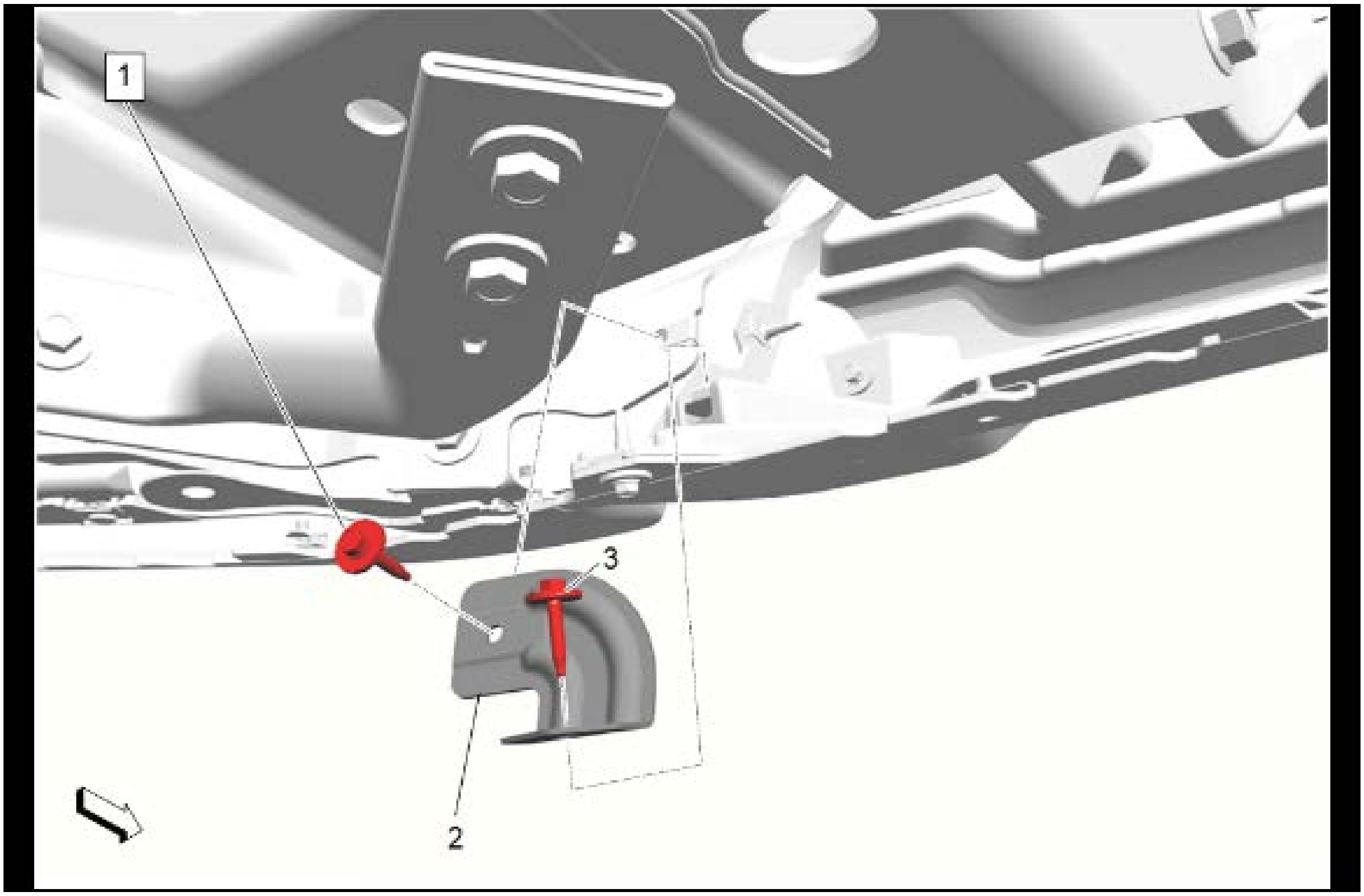


4. Front Bumper Impact Bar Bracket (1) » Install
5. Connect the wiring harness retainers as necessary.



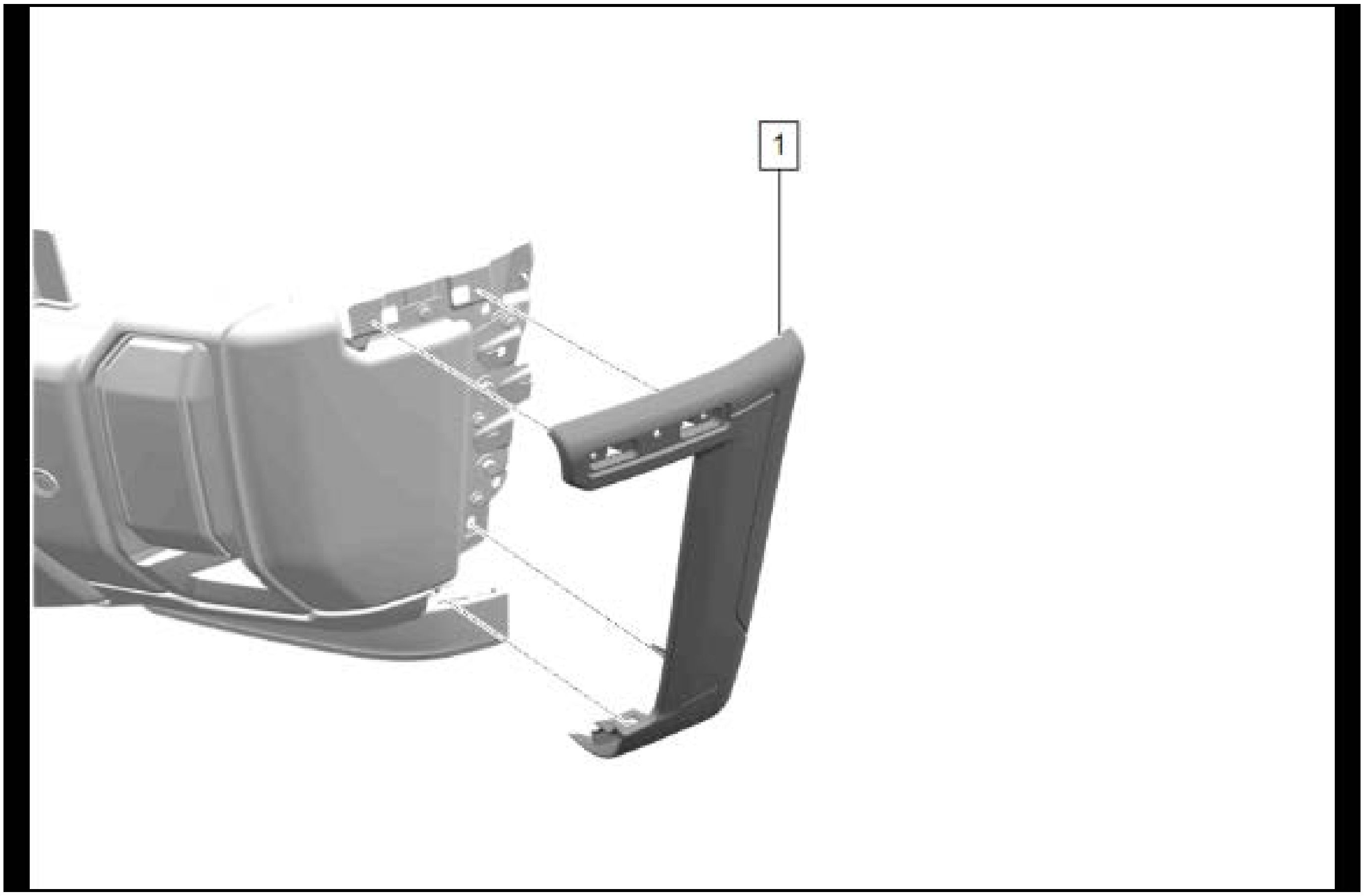
6302308

6. Front Bumper Impact Bar Bolt (1) » Install and tighten [12x]

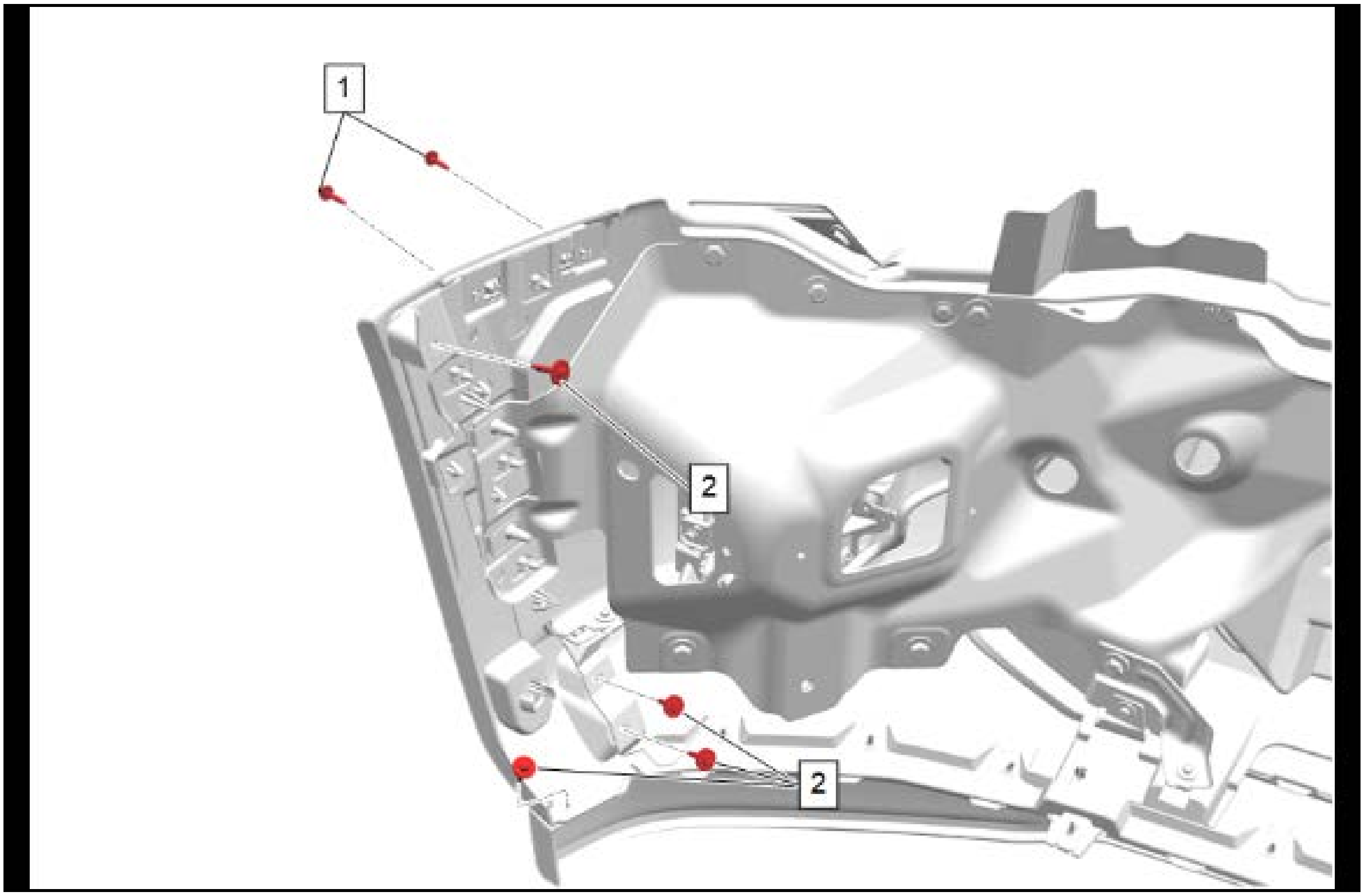


6196072

7. Front Bumper Fascia Outer Bracket (2) » Install
8. Front Bumper Fascia Bolt (3) » Install and tighten
9. Front Bumper Lower Impact Bar Bolt (1) » Install and tighten

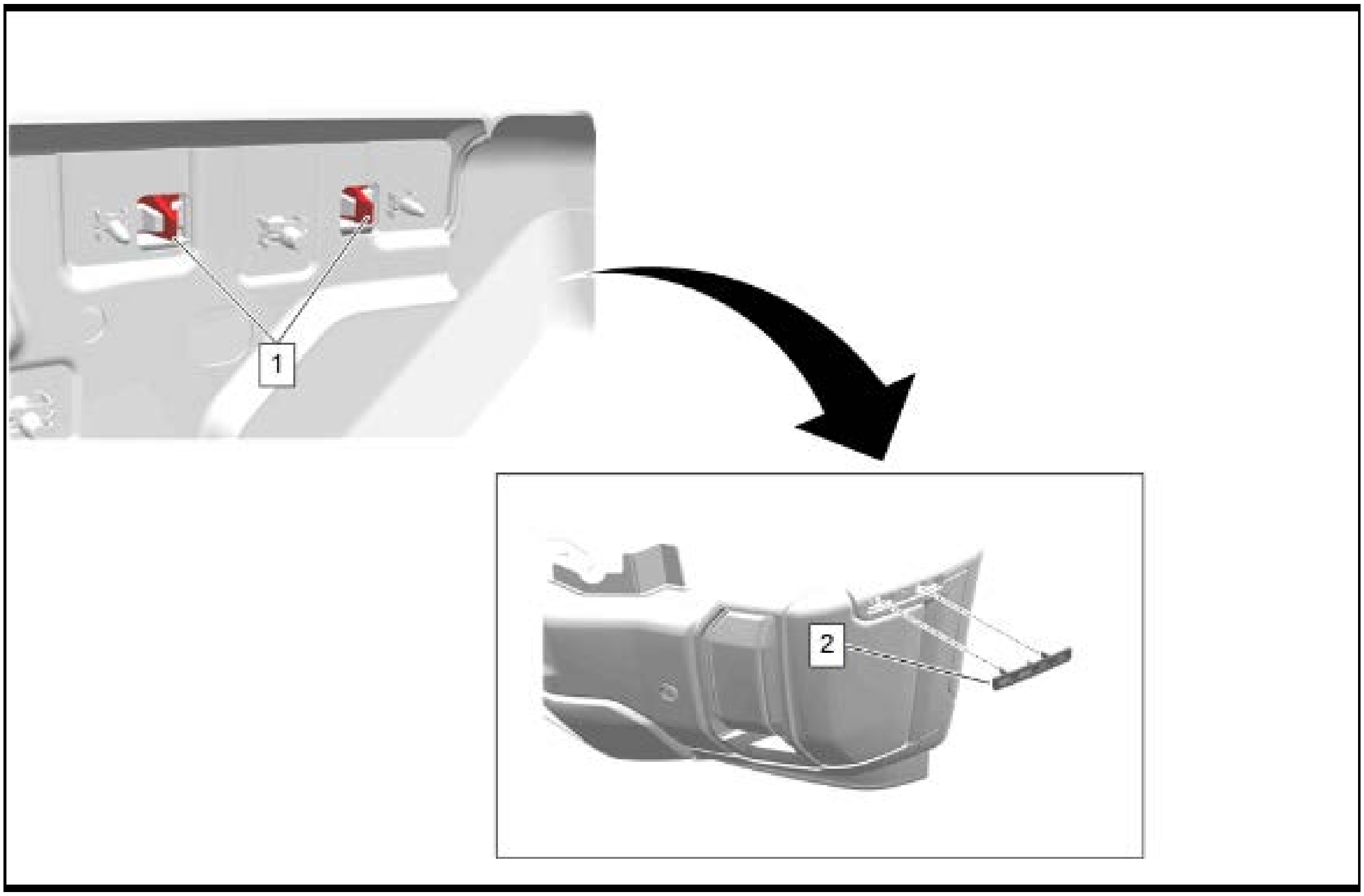


10. Front Bumper Fascia Molding (1) » Install

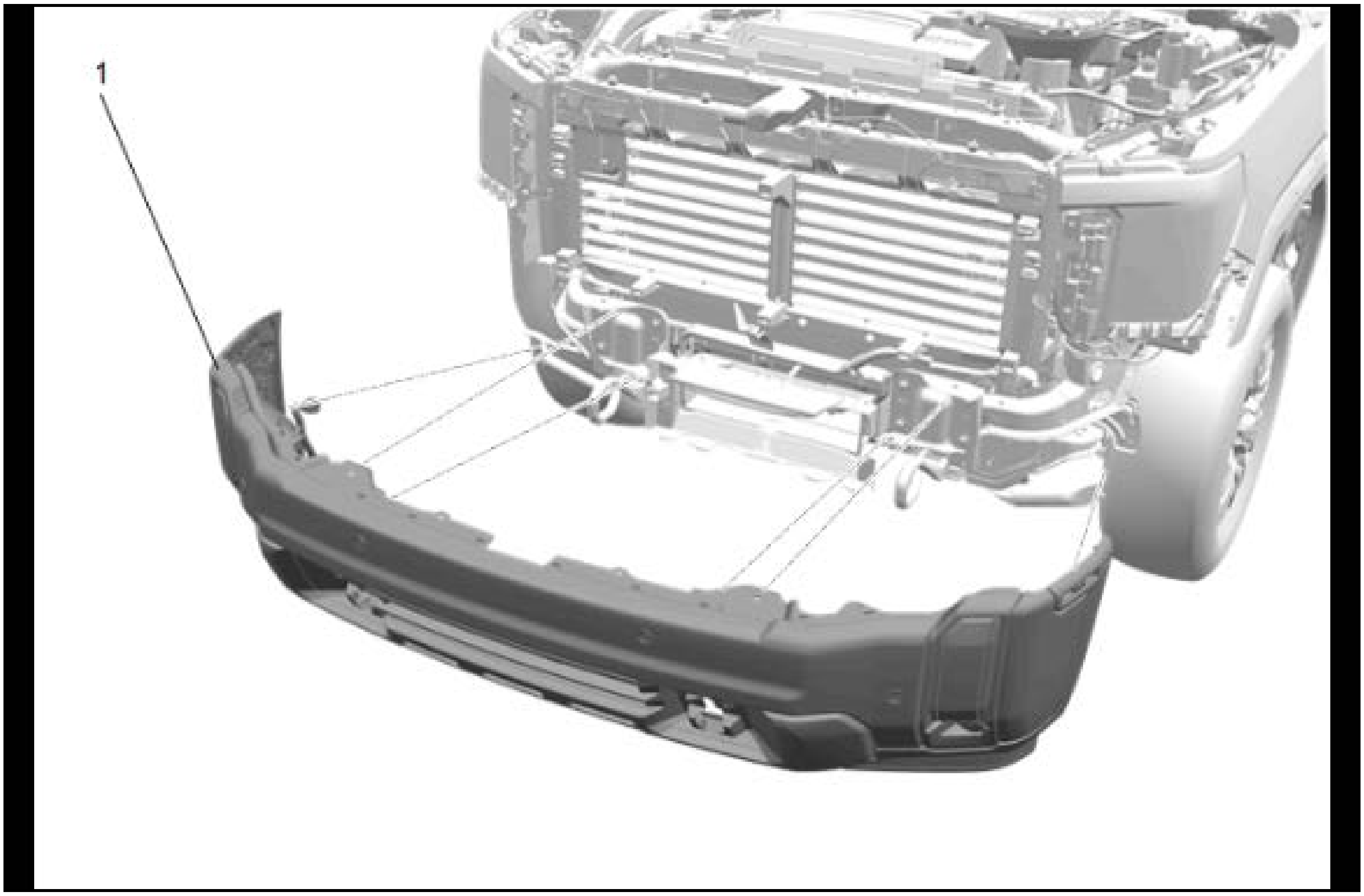


6215153

11. Front Fog Lamp Bolt (2) » Install and tighten [4x]
12. Front Bumper Fascia Bolt (1) » Install and tighten [2x]



13. Front Bumper Fascia Emblem (2) » Install



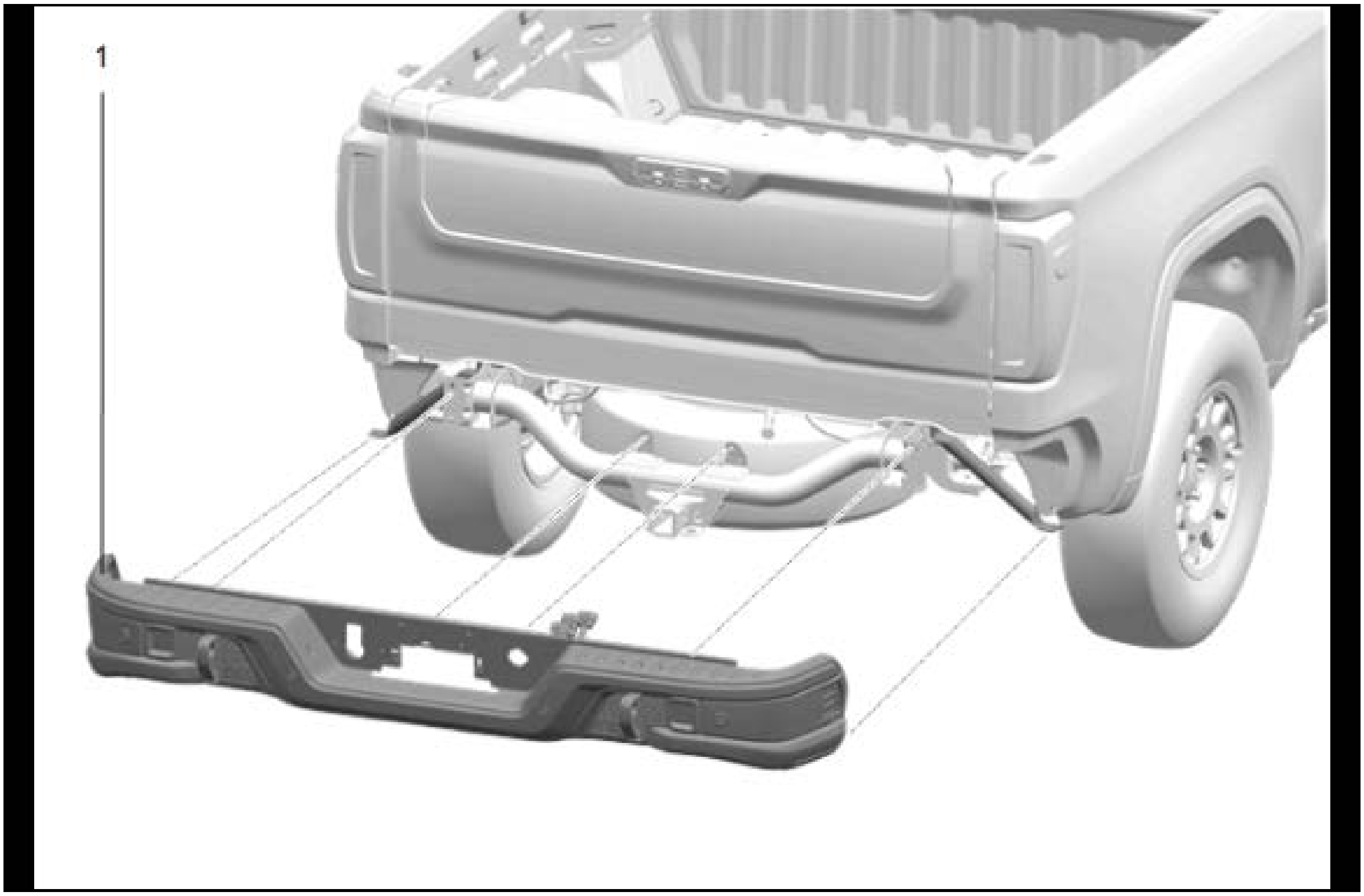
6259437

14. With the aid of an assistant, install the impact bar. (1)

Parking Assist Alarm Sensor Ring Replacement - Outer

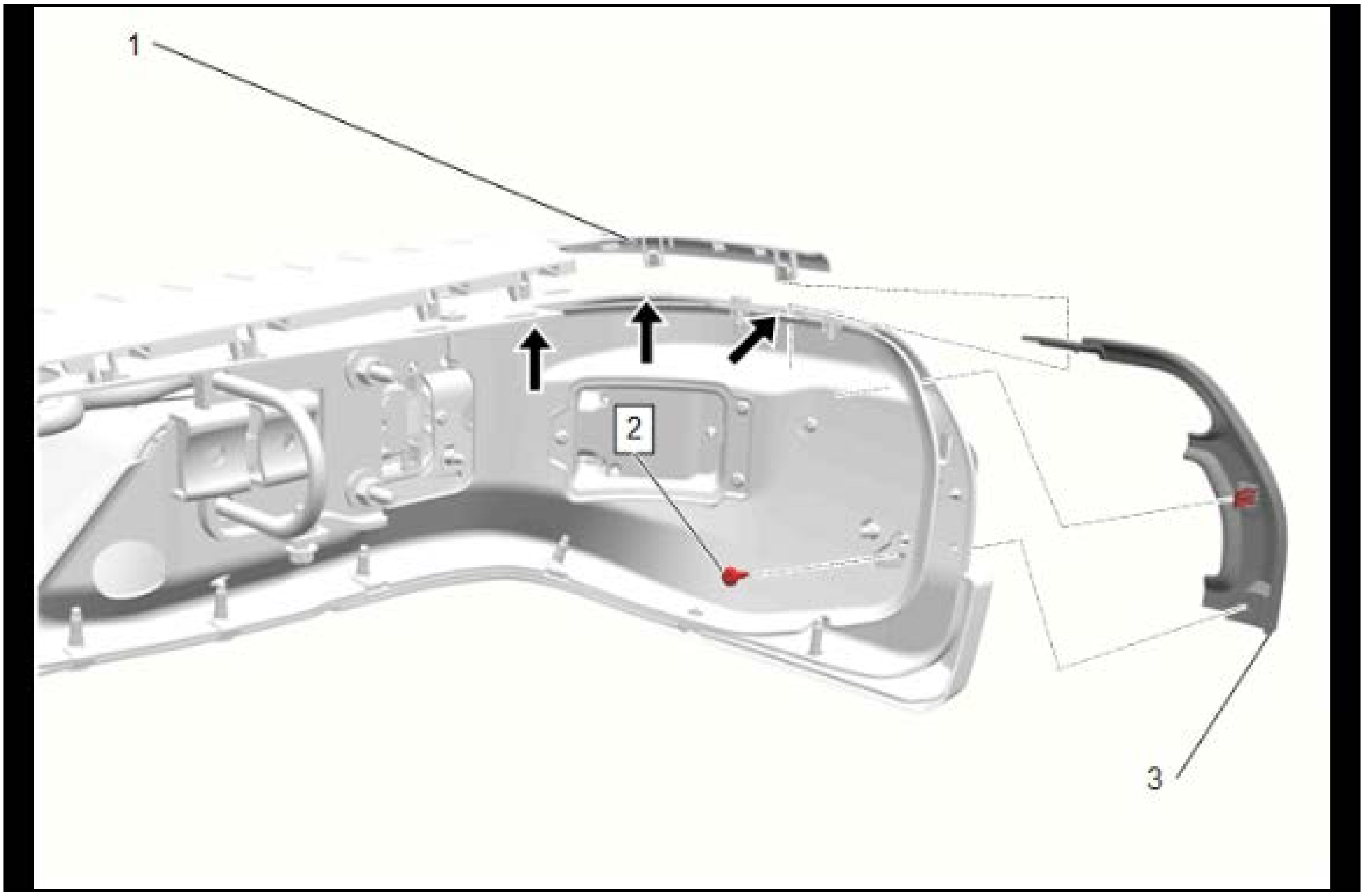
Object-ID=6286812 Owner=Hendrickson, Phil LMD=08-Mar-2023 LMB=Hendrickson, Phil

Removal Procedure



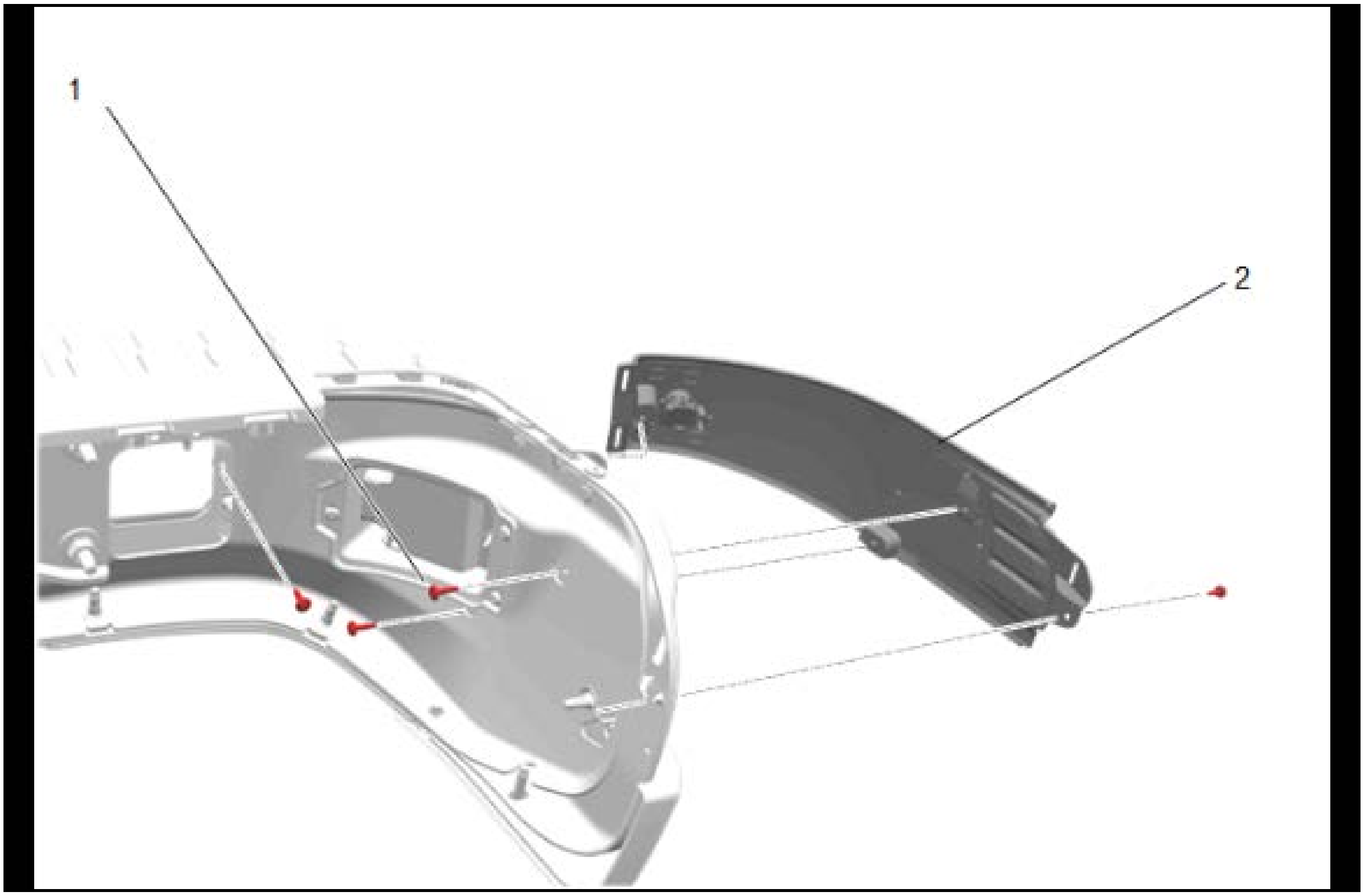
6104705

1. With the aid of assistant, remove the rear bumper impact bar. (1)

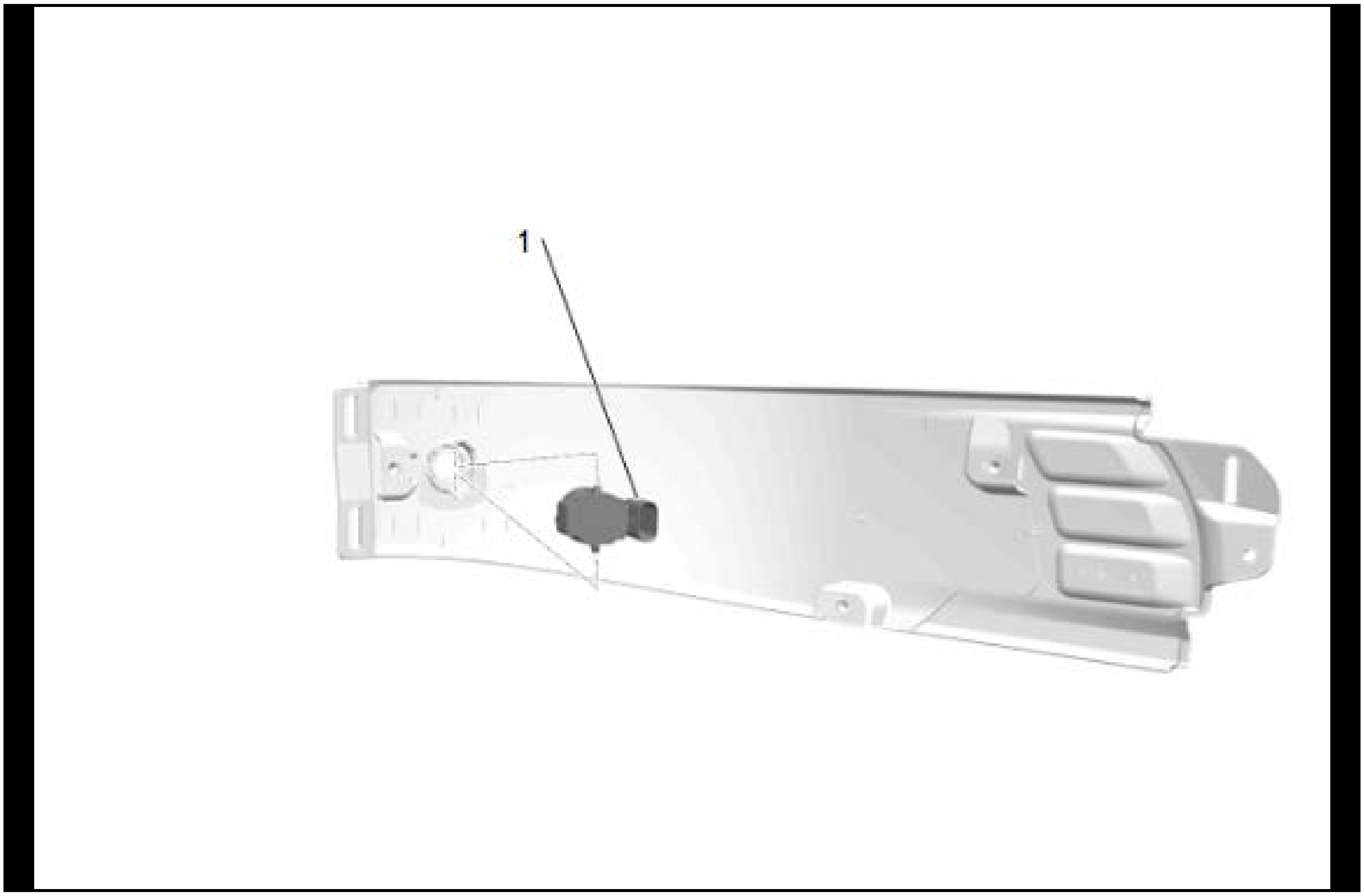


6116988

2. Using a suitable plastic trim tool, release the retaining clips on the outer portion of the upper step pad (1) and reposition.
3. Rear Bumper Fascia Bolt (2) » Remove
4. Using a flat-bladed plastic trim tool, release the retaining clip.
5. Rear Bumper Fascia Molding - Upper (3) » Remove



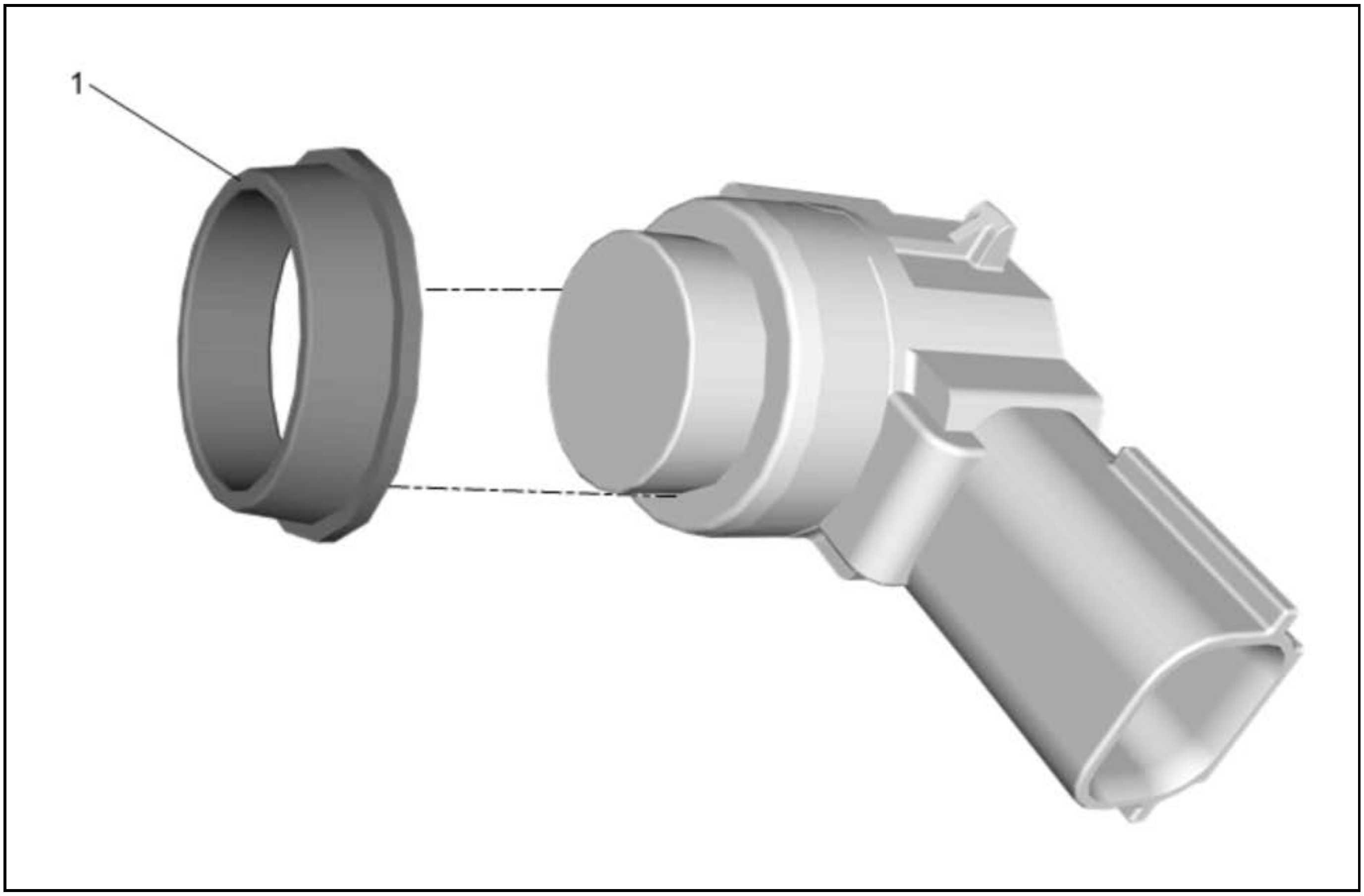
7. Rear Bumper Fascia Bolt (1) » Remove [4x]
8. Rear Bumper Fascia Molding - Outer (2) » Remove



6124468

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

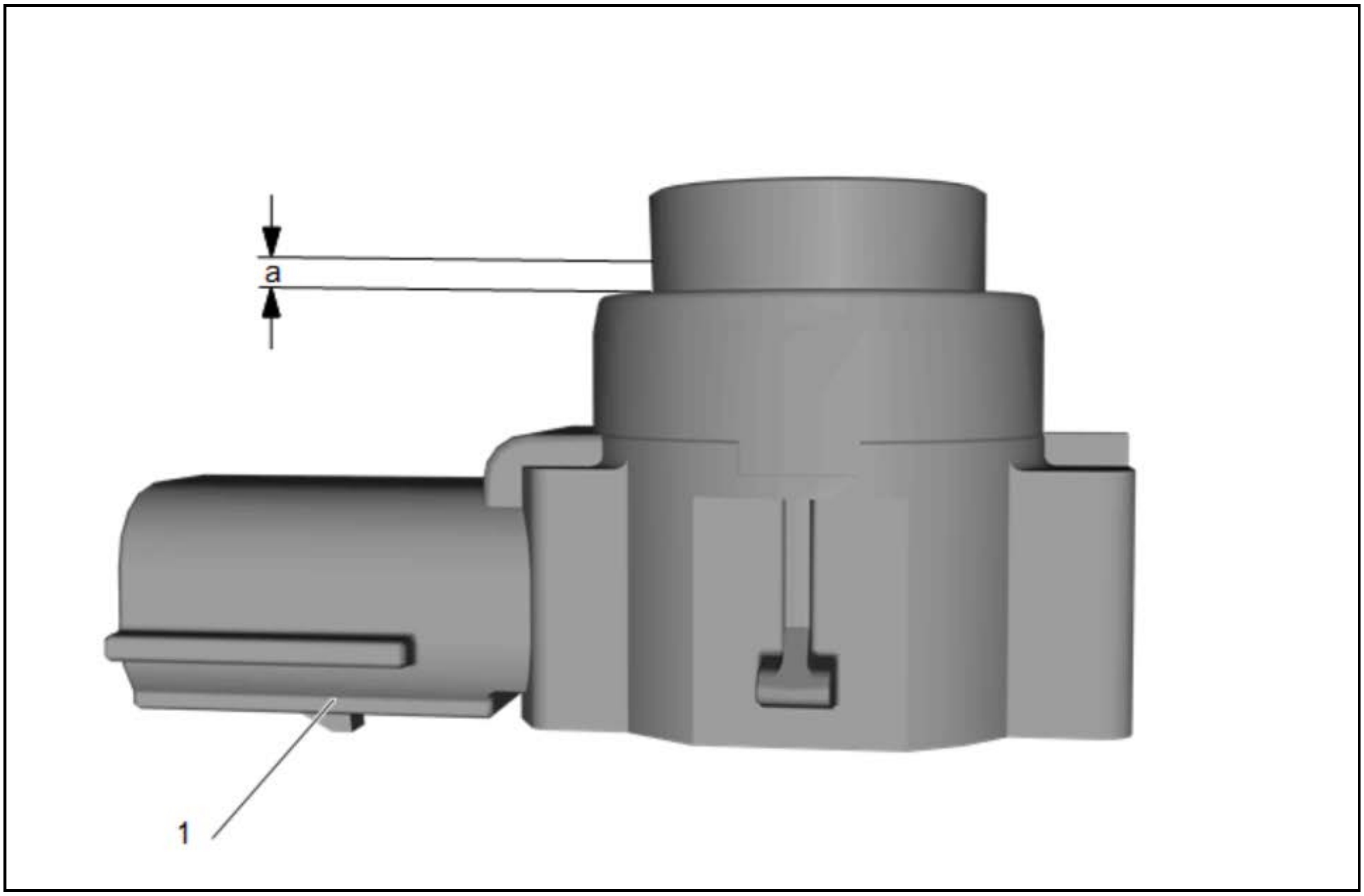
9. Lift the locking tabs on the housing and remove the object sensor (1).
10. Disconnect the electrical connector.



Note: If the sensor ring has any type of damage it must be replaced.

11. Parking Assist Alarm Sensor Ring (1) » Remove

Painting Procedure

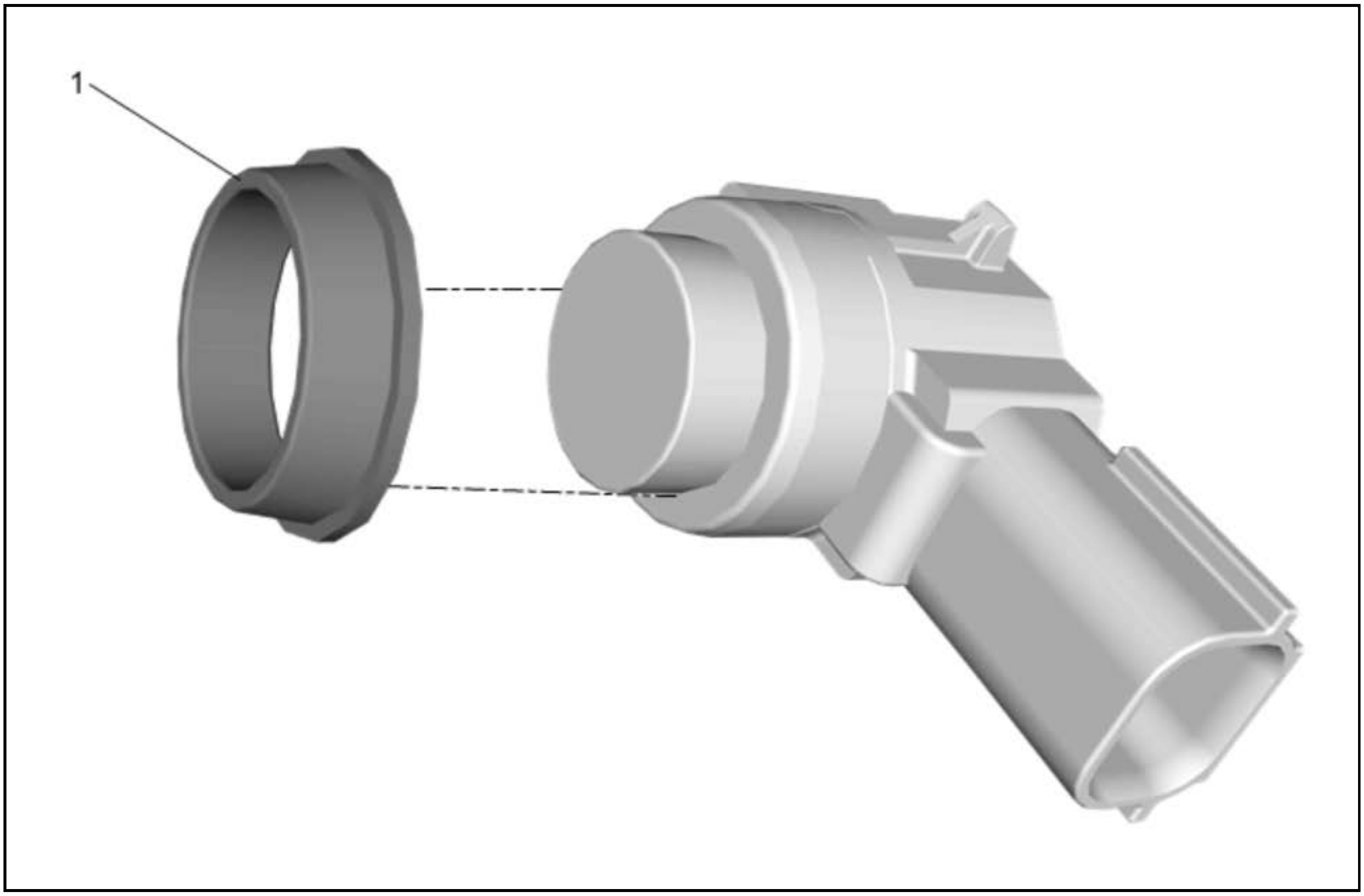


5001999

Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

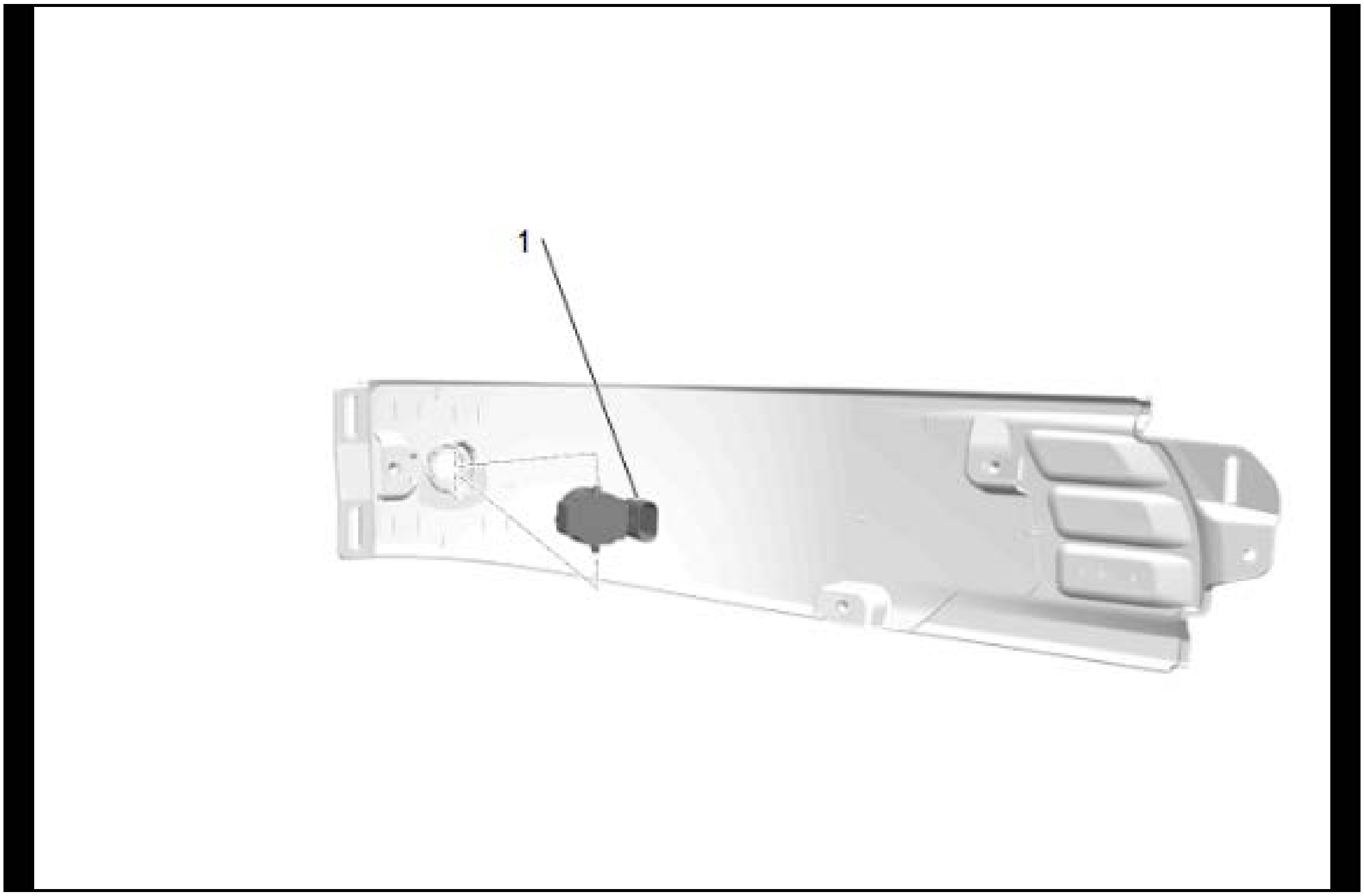
- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



Note: If the sensor ring has any type of damage it must be replaced.

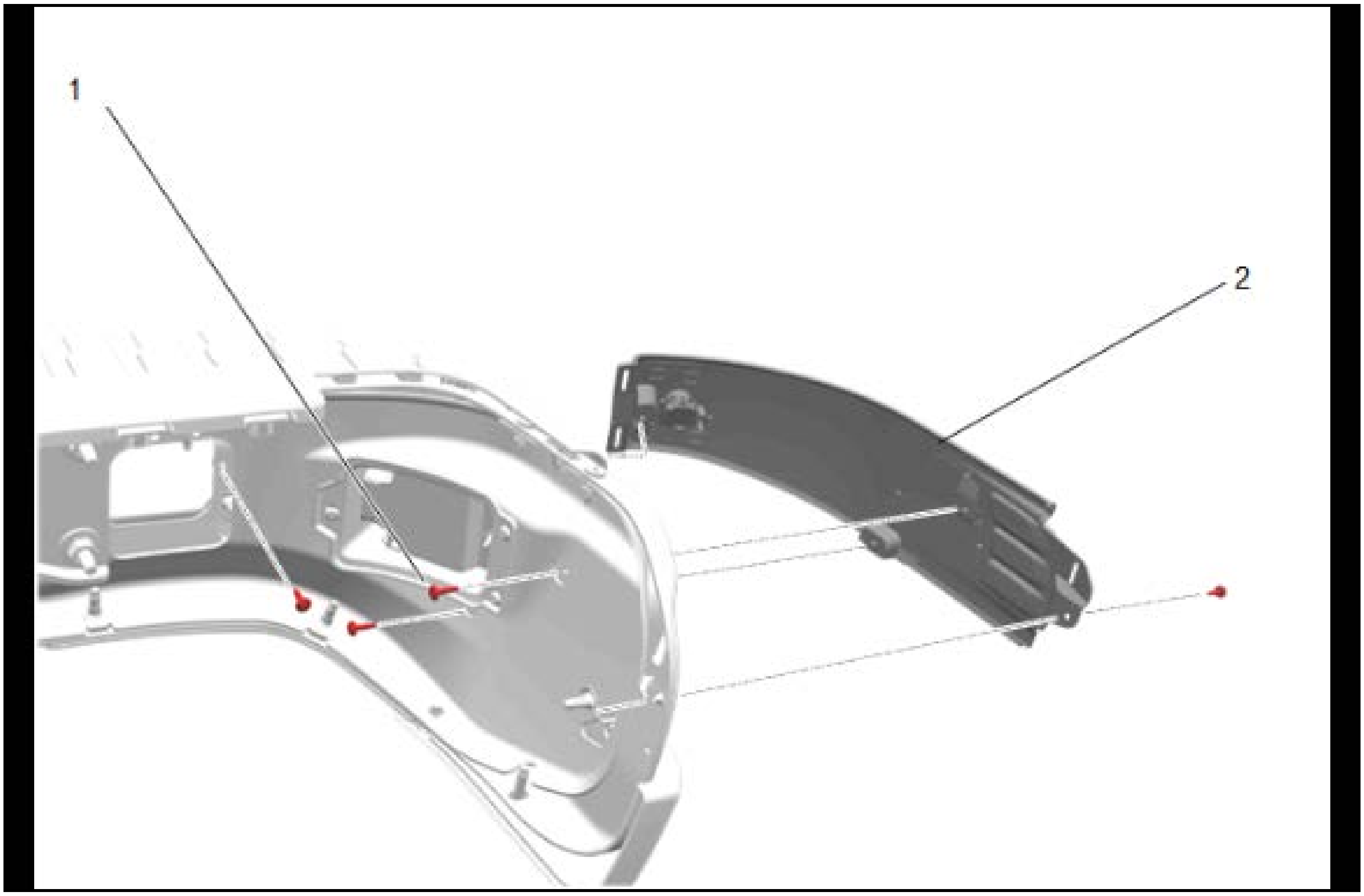
1. Parking Assist Alarm Sensor Ring (1) » Install



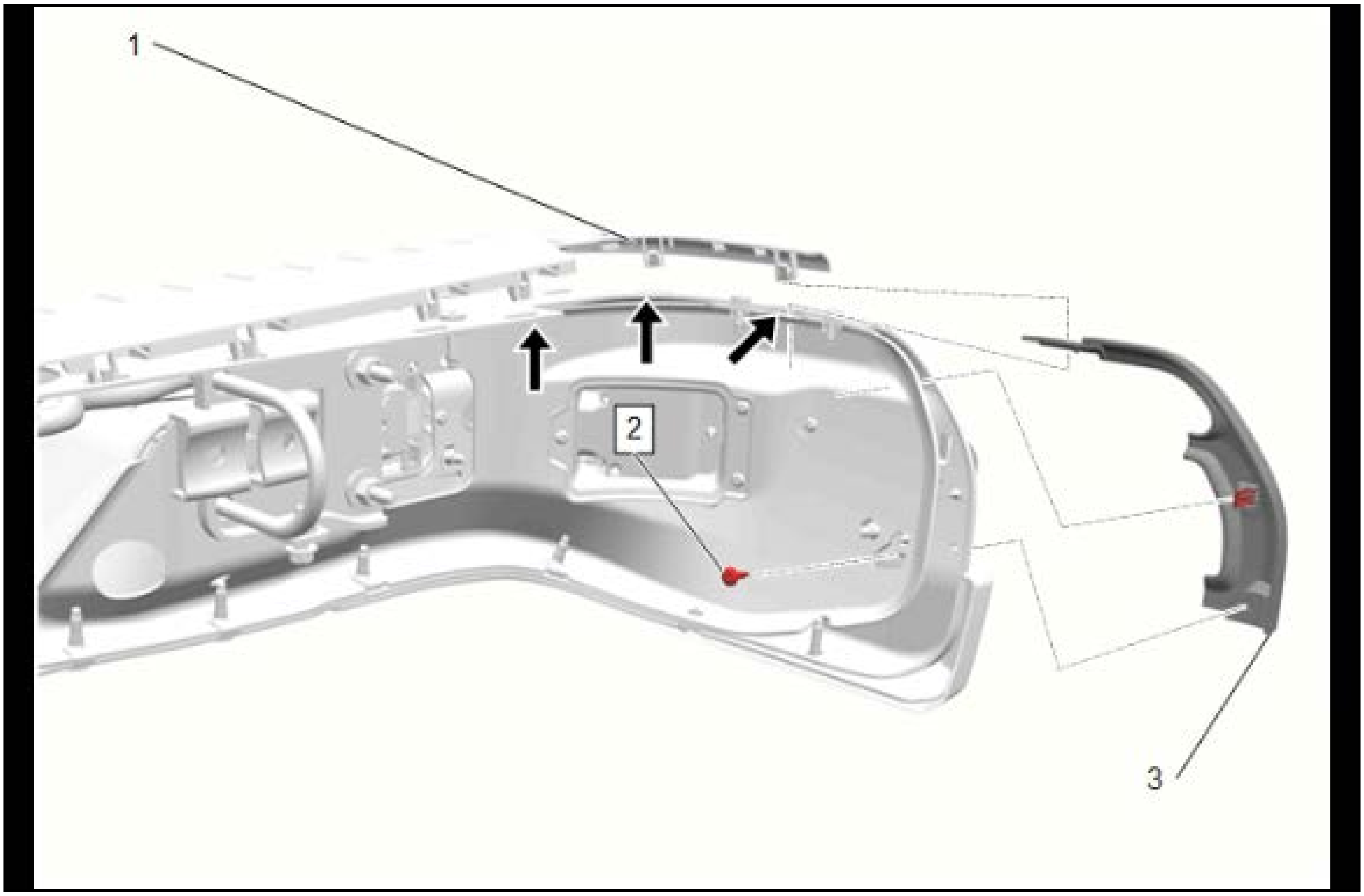
6124468

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

2. Insert the sensor (1) into the housing.
3. Connect the electrical connector.

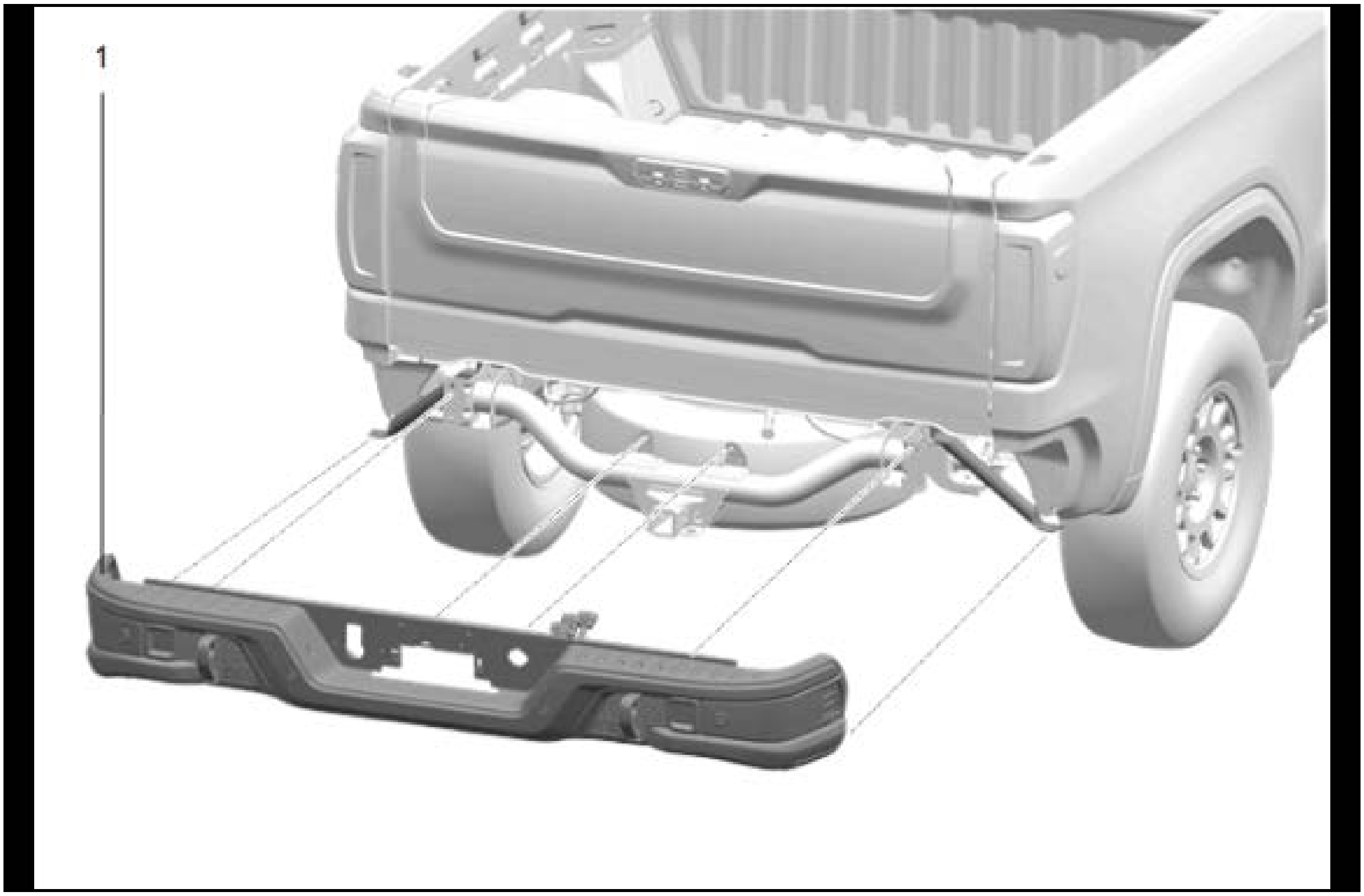


4. Rear Bumper Fascia Molding - Outer (2) » Install
5. Rear Bumper Fascia Bolt (1) » Install and tighten [4x]



6116988

6. Rear Bumper Fascia Molding - Upper (3) » Install
7. Rear Bumper Fascia Bolt (2) » Install and tighten
8. Rear Bumper Fascia Step Pad (1) » Install



6104705

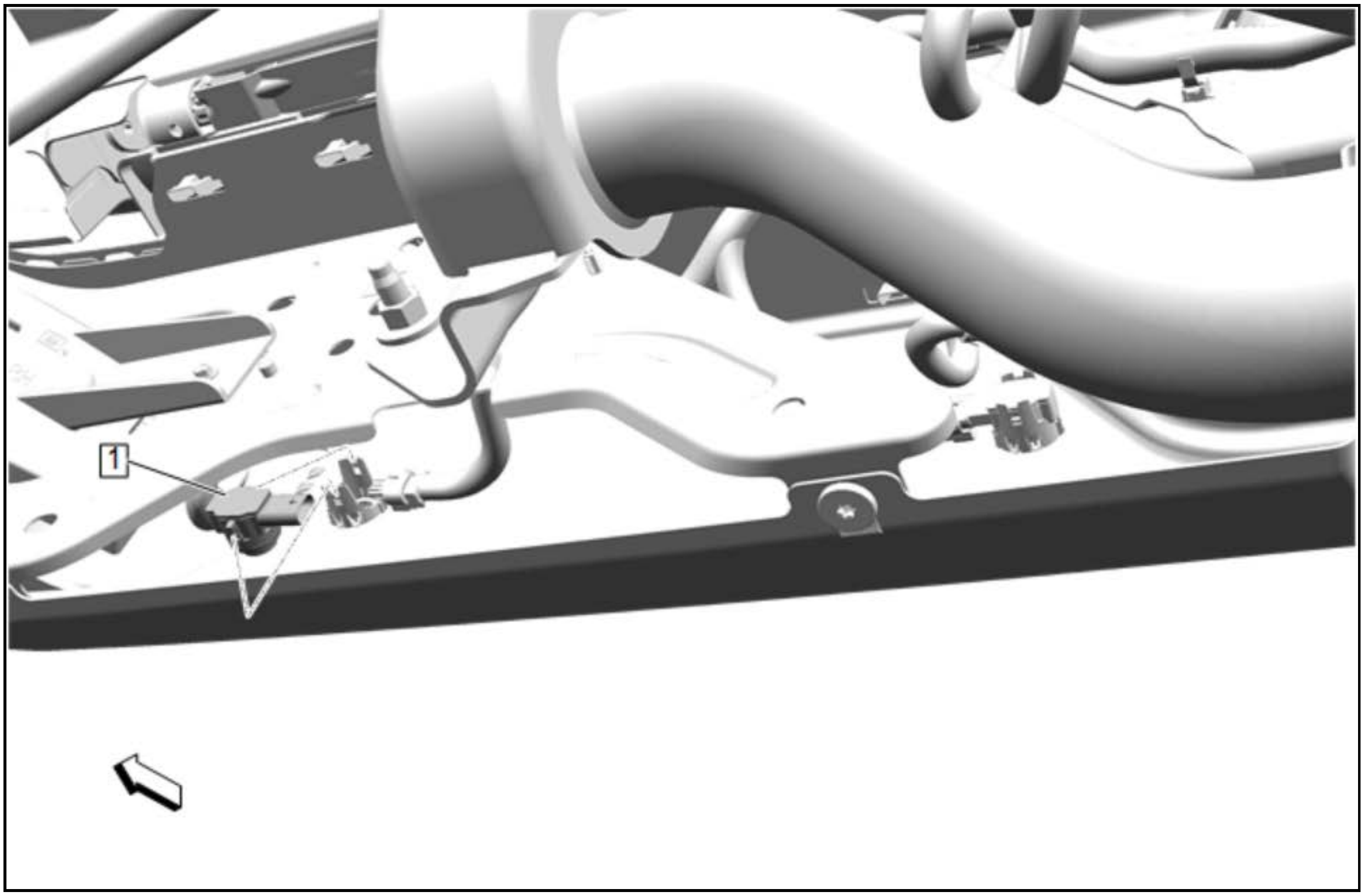
9. With the aid of assistant, install the rear bumper impact bar. (1)

Parking Assist Alarm Sensor Ring Replacement - Rear

Object-ID=5783033 Owner=Welsh, Cody LMD=25-Mar-2021 LMB=McMillan, Tim

Removal Procedure

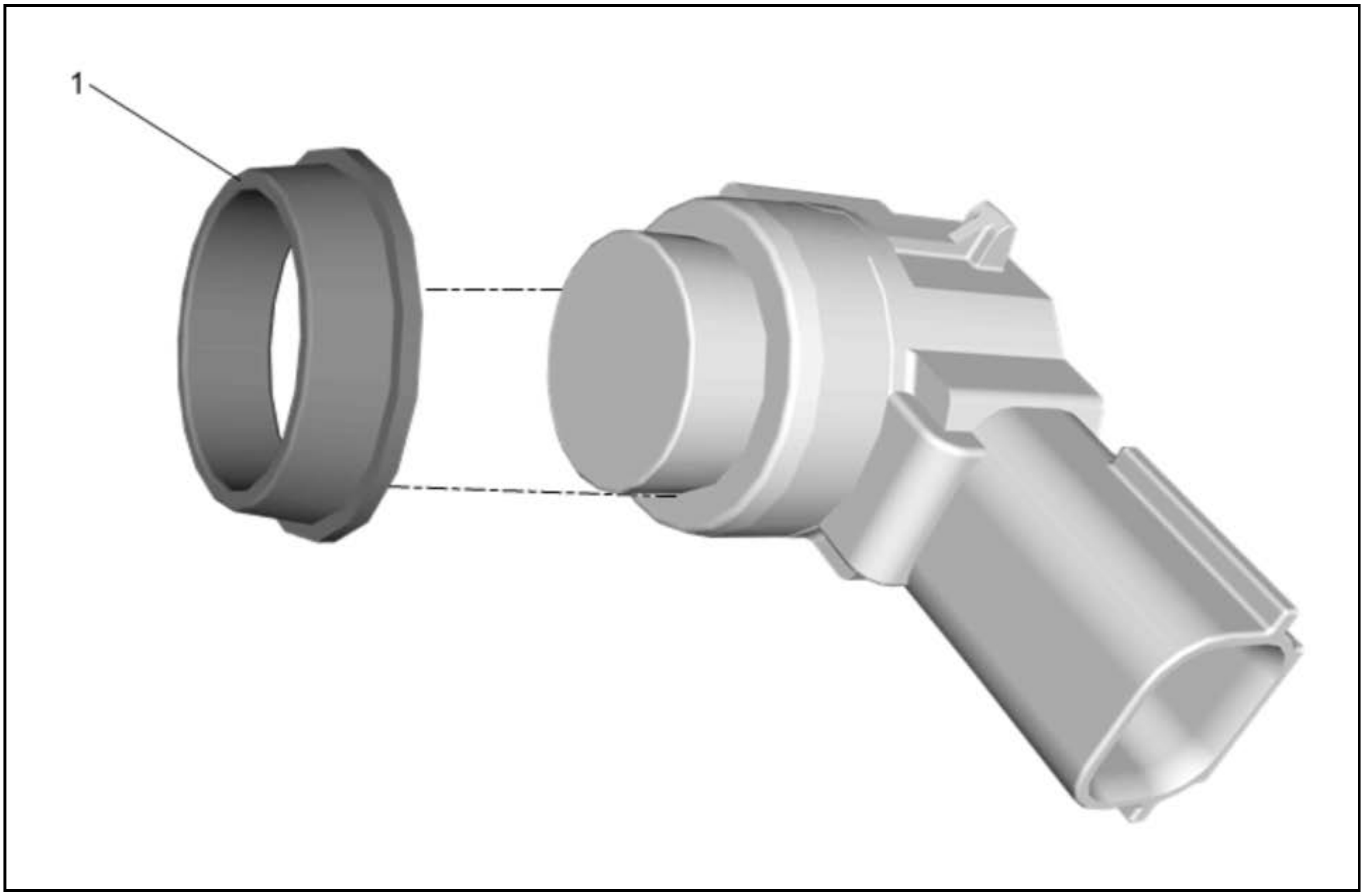
1. Raise and support the vehicle.



5256072

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

3. Lift the locking tabs on the housing and remove the object sensor (1).
4. Disconnect the electrical connector.

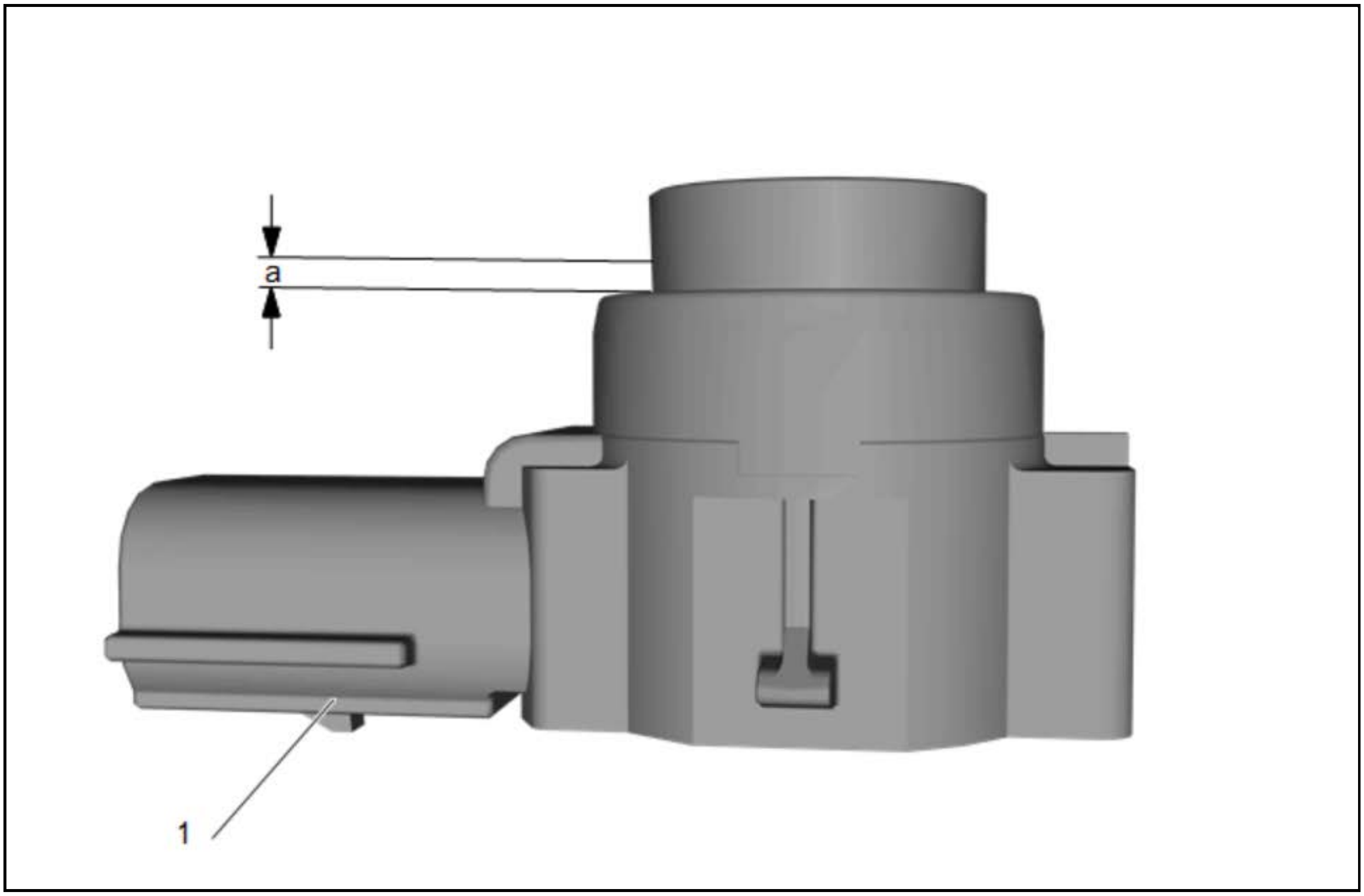


4256655

Note: If the sensor ring has any type of damage it must be replaced.

5. Parking Assist Alarm Sensor Ring (1) » Remove

Painting Procedure

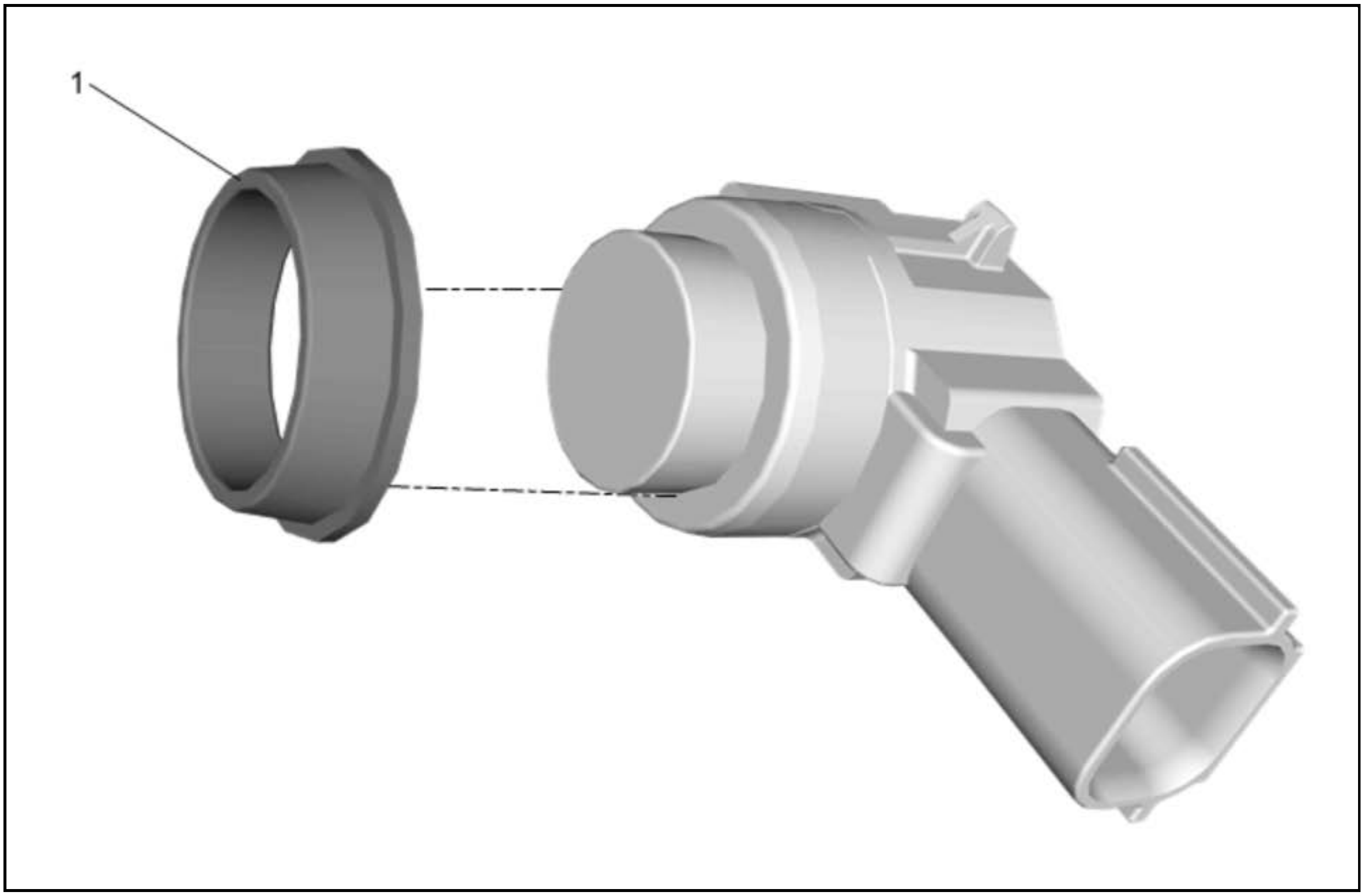


5001999

Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

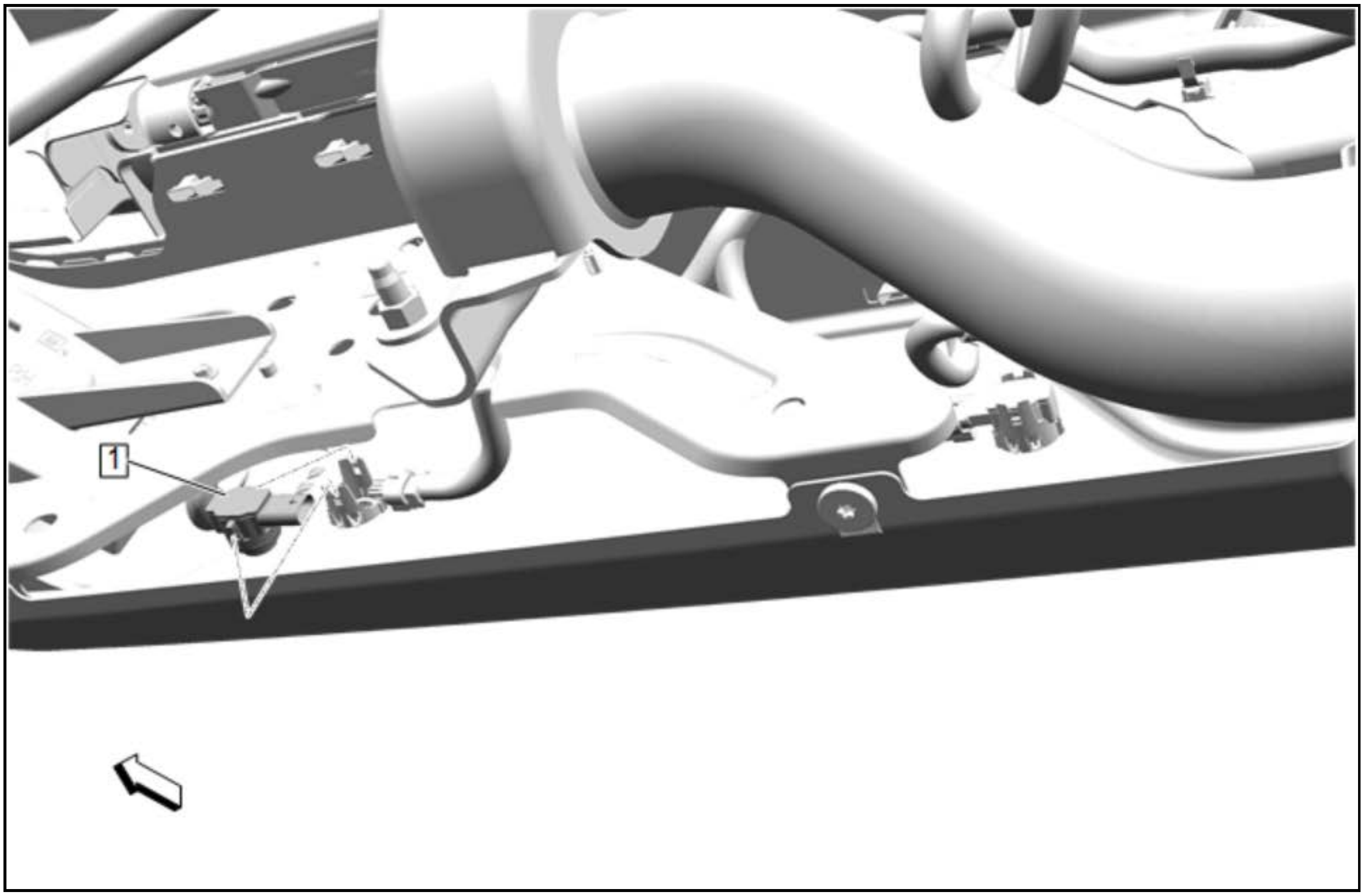
- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



Note: If the sensor ring has any type of damage it must be replaced.

1. Parking Assist Alarm Sensor Ring (1) » Install



5256072

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

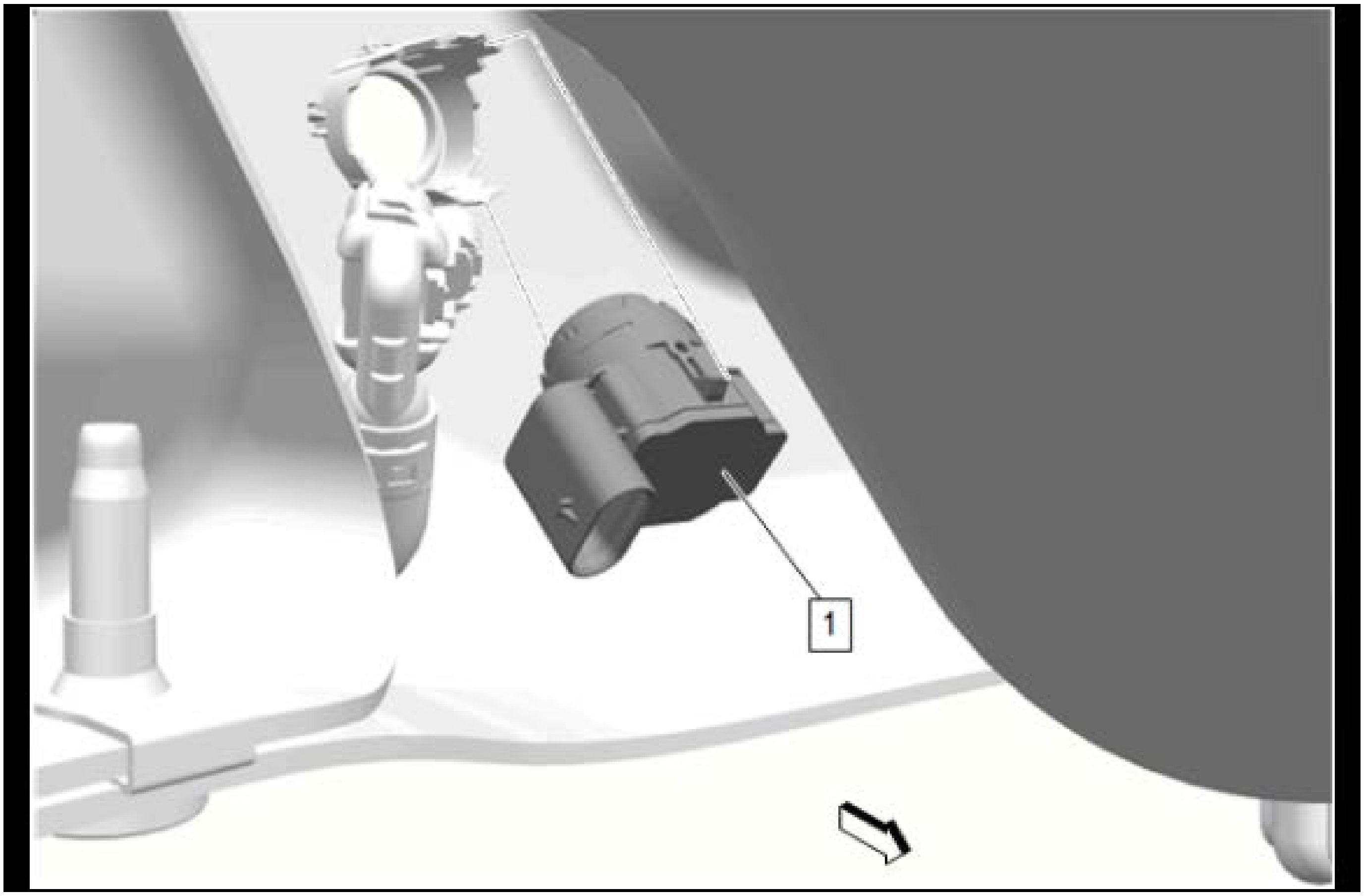
2. Insert the sensor (1) into the housing.
3. Connect the electrical connector.
4. Lower the vehicle.

Parking Assist Alarm Sensor Ring Replacement - Rear

Object-ID=6286461 Owner=Hendrickson, Phil LMD=08-Mar-2023 LMB=Hendrickson, Phil

Removal Procedure

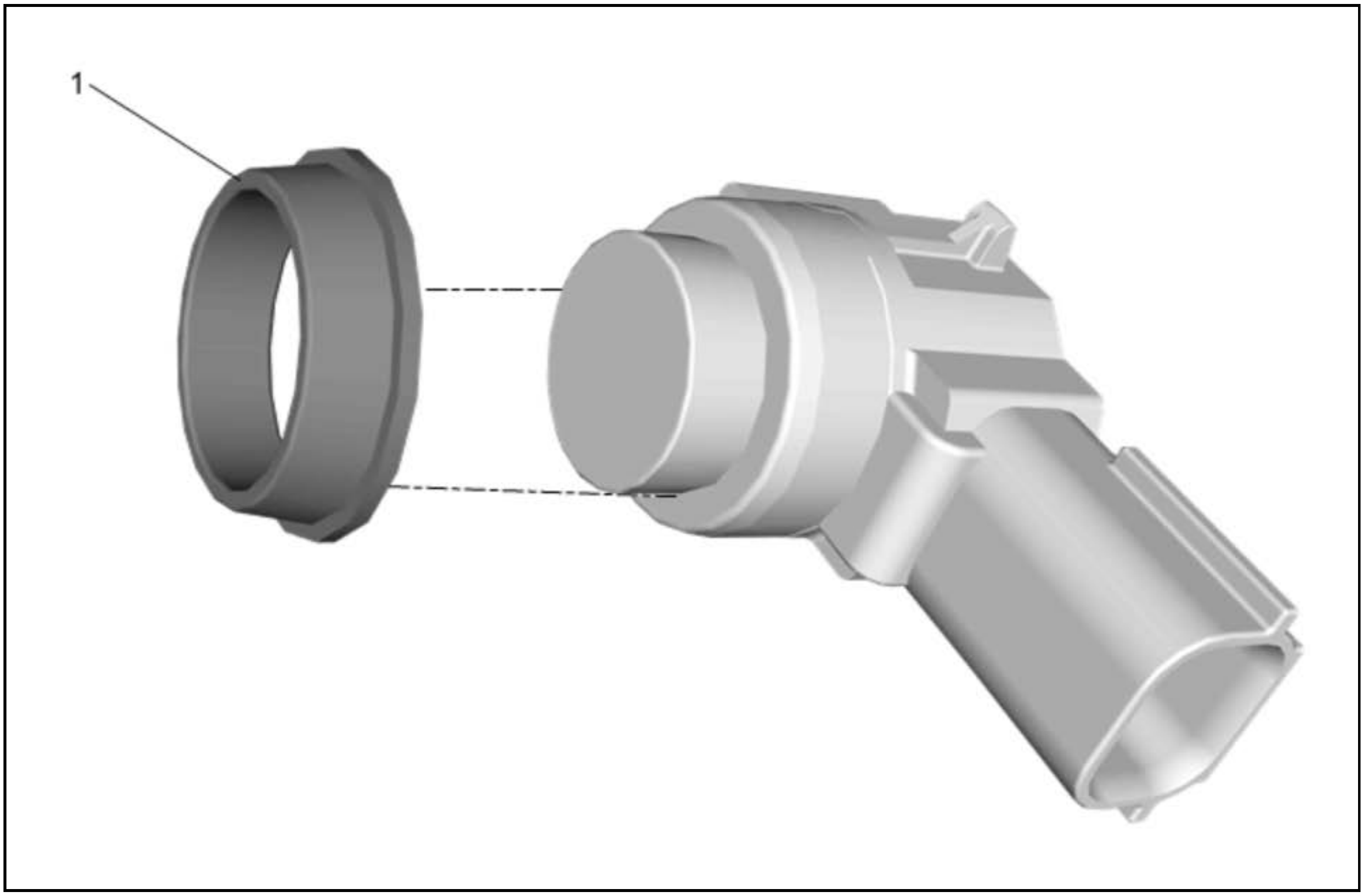
1. Raise and support the vehicle.



6286406

Note: The object sensor is a one piece design. Do NOT twist the sensor cap to try and remove the painted cap. Replacement sensor requires painting to match fascia/bumper body color.

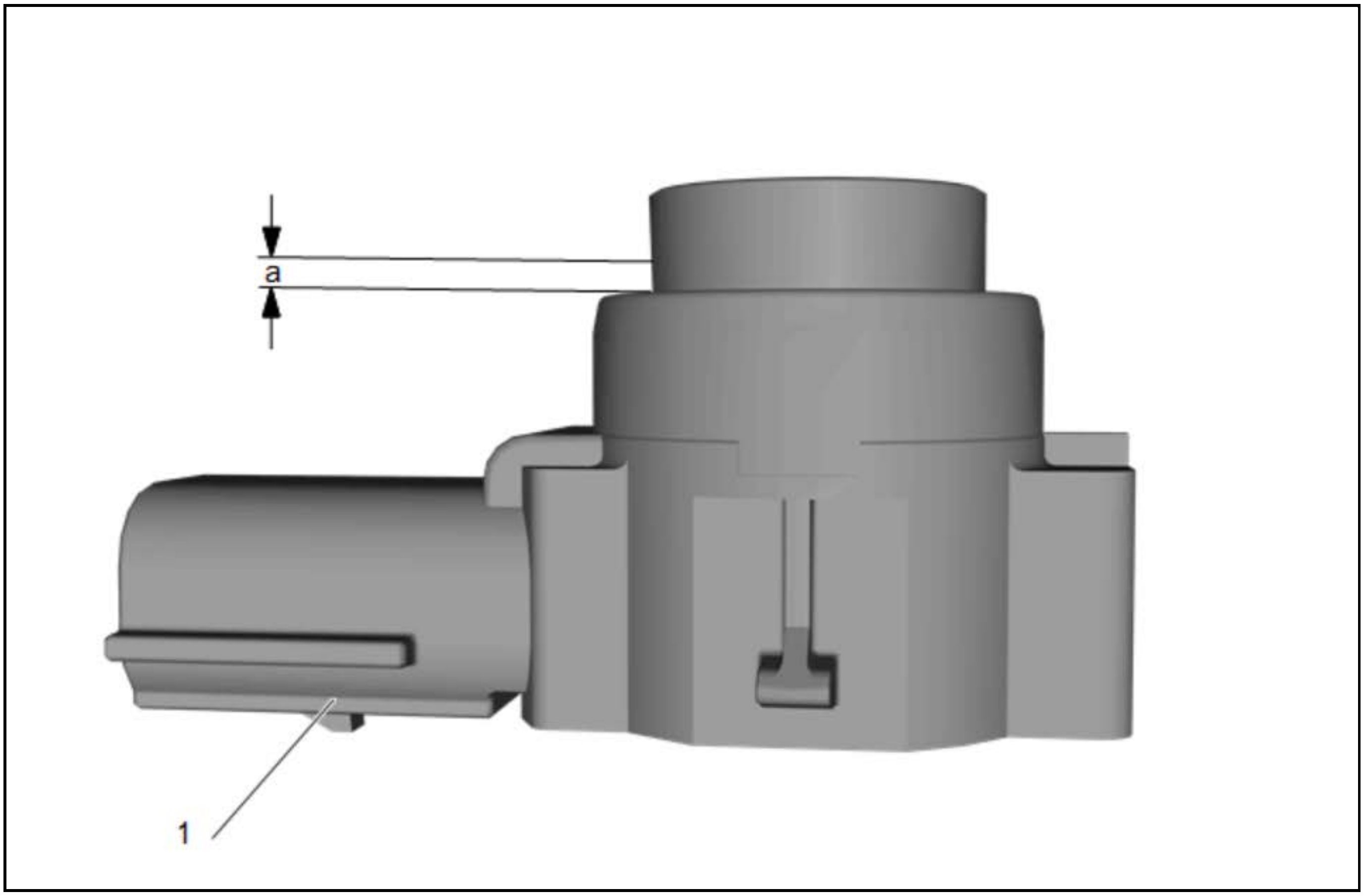
3. Lift the locking tabs on the housing and remove the object sensor (1).
4. Disconnect the electrical connector.



Note: If the sensor ring has any type of damage it must be replaced.

5. Parking Assist Alarm Sensor Ring (1) » Remove

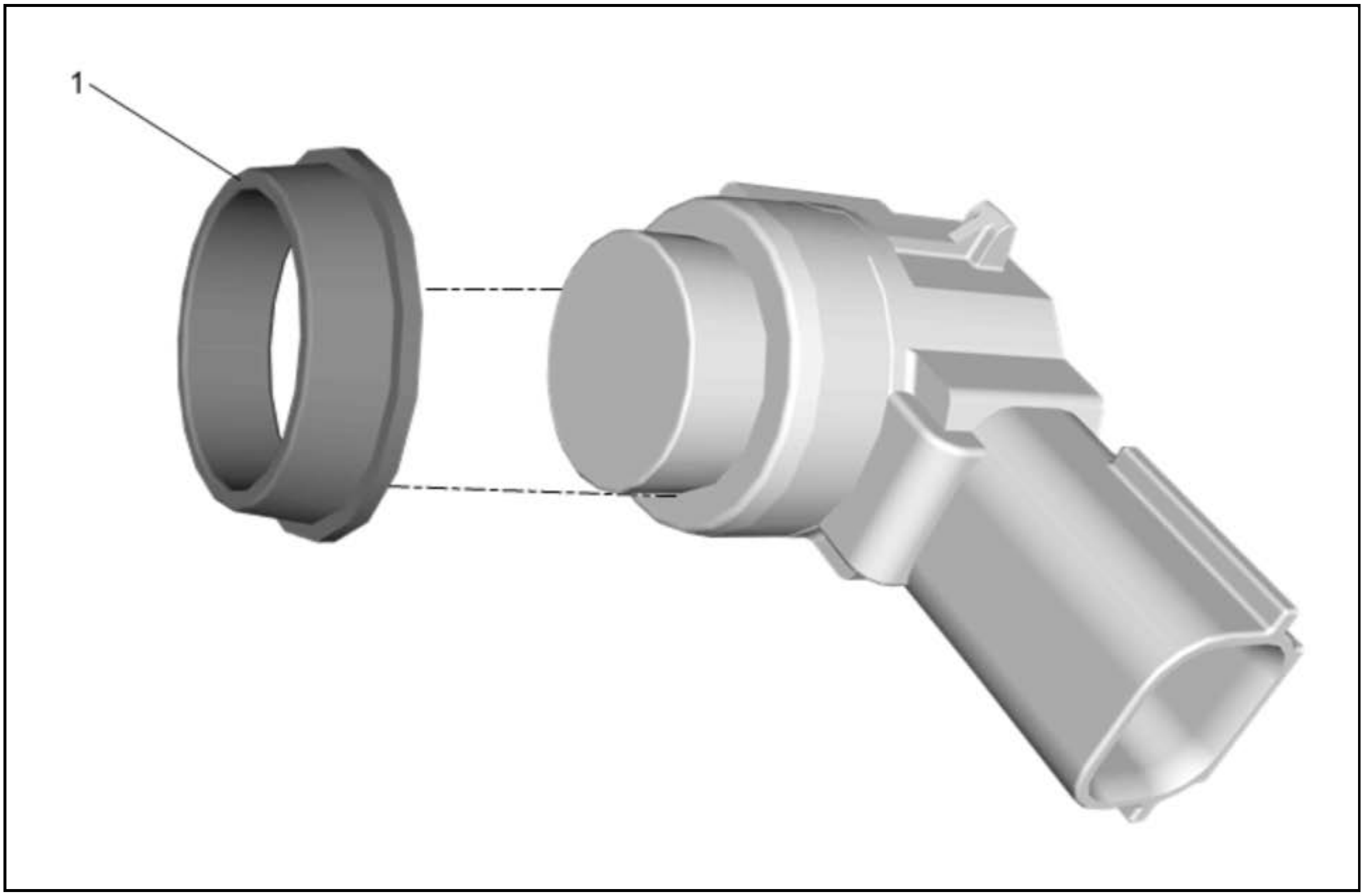
Painting Procedure



Note: Do not refinish previously painted sensors. Excess paint build up will cause the sensor to be inoperative.

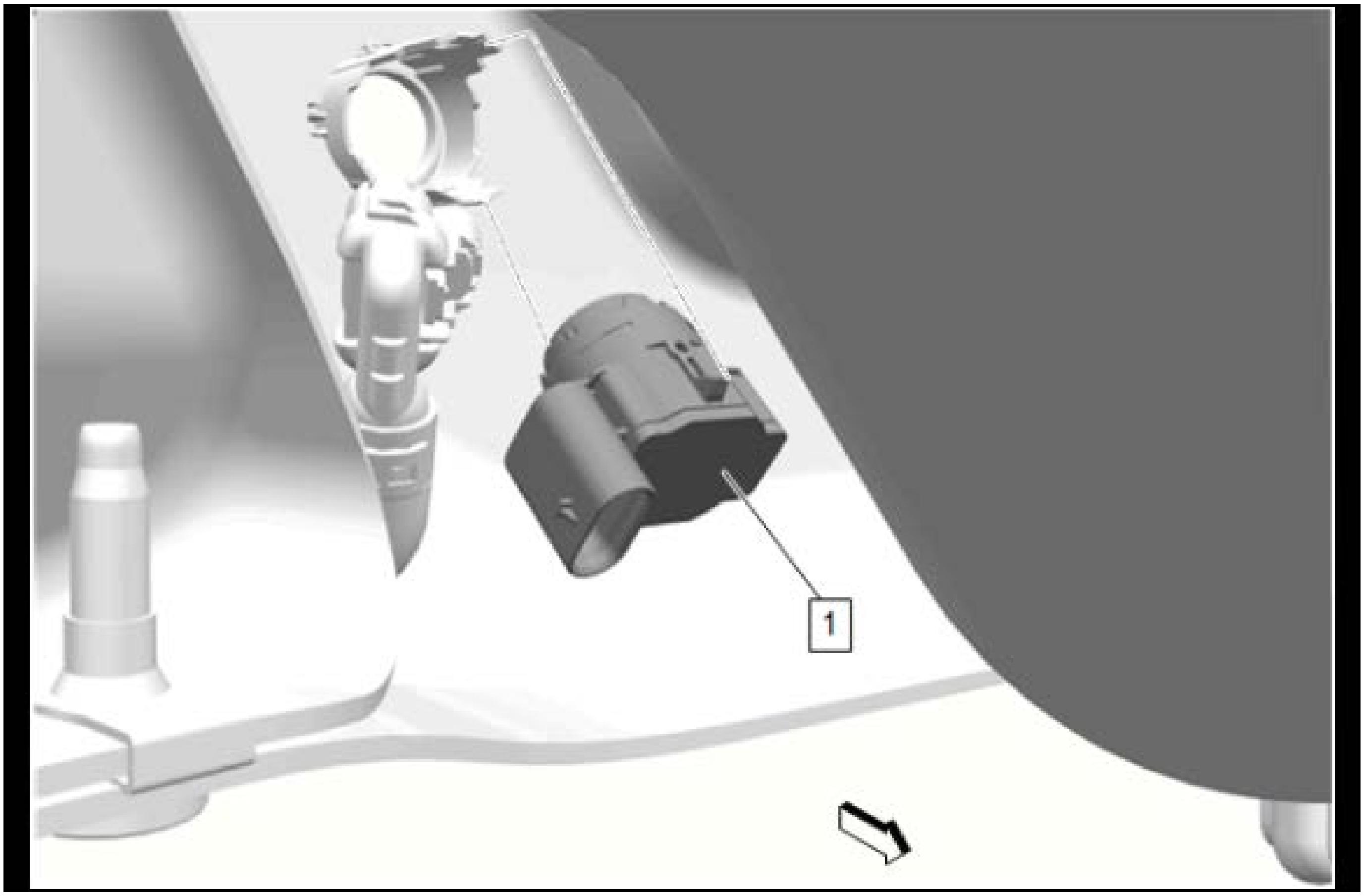
- Pay attention not to scratch sensor (1), sensor already comes prepared to be spray painted.
- Do not sand or prep the sensor head with a Scotch-Brite pad, sensor (1) does not need to be sanded to be spray painted. Use only approved pre clean solvent from your paint manufacturer.
- Mask off the sensor 1/4 in up the sensor shaft (a) from the body of sensor (1) and mask the remainder of the sensor body that will not be painted.
- Apply paint, paint thickness shall not exceed 4.4 mils of paint to the head of the sensor (1) using care to ensure the sides maintain the same paint film thickness as the top.
- Verify paint film with a wet film paint thickness gauge or with a DeFelsko Positector 200B dry film ultrasonic paint thickness gauge.
- Follow the drying conditions of the paint manufacturer before proceeding installation.

Installation Procedure



Note: If the sensor ring has any type of damage it must be replaced.

1. Parking Assist Alarm Sensor Ring (1) » Install



6286406

Note: Ensure the silicone decoupling ring is installed on the sensor to avoid sensor failure.

2. Insert the sensor (1) into the housing.
3. Connect the electrical connector.
4. Remove the support and lower the vehicle.

Description and Operation

Parking Assist Description and Operation (UD7)

Object-ID=5244048 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

The parking assist system is designed to identify and notify the driver of an object in the vehicle path when reversing at speeds of less than 8 km/h (5 mph). The distance and location of the object is determined by four object sensors located in the rear fascia The parking assist system will notify the driver using audible beeps through the infotainment system. Some vehicles may also have a parking assist display on the infotainment screen or driver information center to graphically display the distance to an object.

The parking assist system is made up of the following components:

- K182 Parking Assist Control Module
- B306 Parking Assist Sensors
- Parking Assist Switch
- Parking Assist Switch Indicator
- Infotainment system

K182 Parking Assist Control Module

The K182 Parking Assist Control Module provides a reference voltage and a low reference to the B306 Parking Assist Sensors. The K182 Parking Assist Control Module receives individual signals from each of the four B306 Parking Assist Sensors and determines the location and distance of an object based on these inputs. When an object is detected, the K182 Parking Assist Control Module will send a serial data message to the infotainment system requesting an audible alert.

B306 Parking Assist Sensors

The B306 Parking Assist Sensors are located in the rear fascia of the vehicle. The sensors are used to determine the distance between an object and the bumper. Each sensor emits an ultrasonic frequency which is reflected off any object located behind the vehicle. These reflections are received by the sensors. The time difference between the emission of the frequency and when the reflection is received is known as sensor echo time; it is used to determine the distance to the object. The sensors report this information to the K182 Parking Assist Control Module.

Parking Assist Switch

The parking assist system can be activated and deactivated by pressing the parking assist switch. The K182 Parking Assist Control Module applies voltage and monitors the parking assist switch signal circuit. The parking assist switch is a normally open switch. With the switch open, voltage seen at the K182 Parking Assist Control Module is high. When the parking assist switch is pressed, the switch is closed and the signal circuit is pulled to ground. With the switch closed, voltage seen at the K182 Parking Assist Control Module is low. The K182 Parking Assist Control Module will respond to this by activating or deactivating the parking assist function.

Parking Assist Switch Indicator

When the parking assist system is enabled, the K182 Parking Assist Control Module will illuminate the indicator on the switch. The indicator receives voltage through a high control circuit from the K9 Body Control Module and is controlled through a low control circuit by the K182 Parking Assist Control Module.

Infotainment System

The infotainment system controls the audible alert for the parking assist system. If the an object is detected the infotainment system will command beeps as an audible alert to the driver.

Parking Assist Operation

When an object is within the measuring range of the B306 Parking Assist Sensors, the ultrasonic pulse is reflected and is received by the sending or a neighboring sensor. The sensor converts this signal into a voltage signal and sends this signal to the K182 Parking Assist Control Module. The K182 Parking Assist Control Module evaluates the received sensor signals. As soon as an object is within the measuring range, the K182 Parking Assist Control Module sends a message via serial data to the infotainment system to provide an audible alert signal.

The parking assist system can detect objects greater than 7.6 cm (3 in) wide and 25.4 cm (10 in) tall. The system cannot detect objects below the bumper or underneath the vehicle.

When the transmission is in R, parking assist is automatically activated, unless disable through vehicle personalization.

The K182 Parking Assist Control Module carries out a self test and monitors the sensors for electrical and mechanical faults. Monitored is the power supply of each sensor and the sensor signals. Mud, ice and snow may cause obstruction of the function of the sensors. The K182 Parking Assist Control Module also determines if the correct type of sensor is installed. If any of these tests fails, a DTC with corresponding symptom is set and the parking assist system is deactivated.

Parking Assist System Messages

SERVICE PARK ASSIST

The driver information center displays SERVICE PARK ASSIST when the K182 Parking Assist Control Module detects a malfunction in the parking assist system and the system is disabled. The driver information center also displays SERVICE PARK ASSIST when a loss of communication occurs with the K182 Parking Assist Control Module.

PARK ASSIST OFF

The PARK ASSIST OFF message is displayed in the driver information center when the parking assist system is disabled due to conditions that disable or inhibit the system. The K182 Parking Assist Control Module requests the driver information center display PARK ASSIST OFF when it detects that one of the following conditions:

- The parking assist system is manually disabled.
- An object is attached to the rear of the vehicle, such as a trailer, bicycle rack, trailer hitch receiver, or tow bar. Also, an object extending beyond a lowered tailgate will disable the system.
- The parking assist sensors are covered by snow, mud, dirt, slush, or ice.
- The vehicle rear fascia is damaged.
- Excessive paint thickness on a replacement B306 Parking Assist Sensor.
- The B306 Parking Assist Sensors are disrupted by vibrations, like those caused by a large nearby vehicle or from heavy equipment such as a jackhammer.

Parking Assist Description and Operation (UD5)

Object-ID=5266027 Owner=Ware, Gregory LMD=07-Apr-2022 LMB=Blanzy, Ken

The parking assist system can help drivers avoid certain objects in their path during low-speed parking. The distance and location of the object is determined by 4 object sensors located in the rear fascia and 4 object sensors located in the front fascia. The parking assist system may not detect all children, pedestrians, bicyclists, animals or objects below the bumper. Drivers should remember to always check the area around the vehicle before moving forward or backing up. The parking assist system will not stop or slow down a vehicle. It does not engage a vehicle’s throttle or braking. No safety system can take the place of an alert and engaged driver.

The parking assist system is made up of the following components:

- K182 Parking Assist Control Module
- B306 Parking Assist Sensors
- Parking Assist Switch
- Parking Assist Switch Indicator
- Safety Alert Seat (HS1)
- Infotainment system

K182 Parking Assist Control Module

The K182 Parking Assist Control Module provides a reference voltage and a low reference to the B306 Parking Assist Sensors. The K182 Parking Assist Control Module receives individual signals from each of the four B306 Parking Assist Sensors and determines the location and distance of an object based on these inputs. When an object is detected, the K182 Parking Assist Control Module will send a serial data message to the infotainment system requesting an audible alert.

B306 Parking Assist Sensors

The B306 Parking Assist Sensors are located in the front and rear fascia of the vehicle. The sensors are used to determine the distance between an object and the bumper. Each sensor emits an ultrasonic frequency which is reflected off any object located behind the vehicle. These reflections are received by the sensors. The time difference between the emission of the frequency and when the reflection is received is known as sensor echo time; it is used to determine the distance to the object. The sensors report this information to the K182 Parking Assist Control Module.

Parking Assist Switch

The parking assist system can be activated and deactivated by pressing the parking assist switch. The K182 Parking Assist Control Module applies voltage and monitors the parking assist switch signal circuit. The parking assist switch is a normally open switch. With the switch open, voltage seen at the K182 Parking Assist Control Module is high. When the parking assist switch is pressed, the switch is closed and the signal circuit is pulled to ground. With the switch closed, voltage seen at the K182 Parking Assist Control Module is low. The K182 Parking Assist Control Module will respond to this by activating or deactivating the parking assist function.

Parking Assist Switch Indicator

When the parking assist system is enabled, the K182 Parking Assist Control Module will illuminate the indicator on the switch. The indicator receives voltage through a high control circuit from the K9 Body Control Module and is controlled through a low control circuit by the K182 Parking Assist Control Module.

Safety Alert Seat (HS1)

The K40 Seat Memory Control Module controls the P45 Seat Haptic Movement Motors. The P45 Seat Haptic Movement Motors provide haptic alert to the driver. If an object is detected, the K40 Seat Memory Control Module will command pulses to the P45 Seat Haptic Movement Motors as an alert to the driver.

Infotainment System

The infotainment system controls the audible alert for the parking assist system. If the an object is detected the infotainment system will command beeps as an audible alert to the driver.

Front and Rear Parking Assist Operation

The rear parking assist system uses 4 B306 Parking Assist Sensors located on the rear fascia and functions when the transmission is in REVERSE. When a driver is backing up at a low speed, below 8 km/h (5 mph), the B306 Parking Assist Sensors may detect objects up to 8 feet (2.4 m) behind the vehicle. When an object is within the measuring range of the B306 Parking Assist Sensors, the ultrasonic pulse is reflected and is received by the sending or a neighboring sensor. The sensor converts this signal into a voltage signal and sends this signal to the K182 Parking Assist Control Module. The K182 Parking Assist Control Module evaluates the received sensor signals.

When an object is first detected while backing up, the parking assist system emits low-pitched beeps from the rear speakers, or, if the vehicle is equipped with the Safety Alert Seat (HS1), the seat pulses 2 times on both sides of the seat. On some vehicles, the time between beeps may get shorter as the vehicle approaches the detected object . When an object is within 0.6 m (2 ft) of the bumper, 5 repeating low-pitched beeps are played from the rear speakers, or, if the vehicle is equipped with the Safety Alert Seat (HS1), it pulses 5 times on both sides. When an object is within 0.3 m (1 ft) of the bumper, repeating low-pitched beeps or a continuous low-pitched tone is played from the rear speakers, or, if the vehicle is equipped with the Safety Alert Seat (HS1), the seat pulses 5 times on both sides

The front parking assist system uses 4 B306 Parking Assist Sensors located on the front fascia and functions when the vehicle is moving forward at low speeds. When a driver is driving forward at a low speed, below 8 km/h (5 mph), the B306 Parking Assist Sensors may detect objects up to 8 feet (2.4 m) in front og the vehicle. When an object is within the measuring range of the B306 Parking Assist Sensors, the ultrasonic pulse is reflected and is received by the sending or a neighboring sensor. The sensor converts this signal into a voltage signal and sends this signal to the K182 Parking Assist Control Module. The K182 Parking Assist Control Module evaluates the received sensor signals.

The front parking assist system uses a parking assist display with bars that show "distance to object," driving direction, and object location information for the parking assist system. As the vehicle gets closer to the detected object, distance-to-object information and caution triangles may be displayed that changes from yellow to amber to red.

When an object is within 0.3 m (1 ft) of the bumper, repeating low-pitched beeps or a continuous low-pitched tone is played from the rear speakers, or, if the vehicle is equipped with the Safety Alert Seat (HS1), the seat pulses 5 times on both sides

The parking assist system can be turned ON and OFF using the parking assist switch control or through driver information center.

The K182 Parking Assist Control Module carries out a self test and monitors the sensors for electrical and mechanical faults. Monitored is the power supply of each sensor and the sensor signals. Mud, ice and snow may cause obstruction of the function of the sensors. The K182 Parking Assist Control Module also determines if the correct type of sensor is installed. If any of these tests fails, a DTC with corresponding symptom is set and the parking assist system is deactivated.

Parking Assist System Messages

SERVICE PARK ASSIST

The driver information center displays SERVICE PARK ASSIST when the K182 Parking Assist Control Module detects a malfunction in the parking assist system and the system is disabled. The driver information center also displays SERVICE PARK ASSIST when a loss of communication occurs with the K182 Parking Assist Control Module.

PARK ASSIST OFF

The PARK ASSIST OFF message is displayed in the driver information center when the parking assist system is disabled due to conditions that disable or inhibit the system. The K182 Parking Assist Control

Module requests the driver information center display PARK ASSIST OFF when it detects that one of the following conditions:

- The parking assist system is manually disabled.
- An object is attached to the rear of the vehicle, such as a trailer, bicycle rack, trailer hitch receiver, or tow bar. Also, an object extending beyond a lowered tailgate will disable the system.
- The B306 Parking Assist Sensors are covered by snow, mud, dirt, slush, or ice.
- The vehicle front or rear fascia is damaged.
- Excessive paint thickness on a replacement B306 Parking Assist Sensor.
- The B306 Parking Assist Sensors are disrupted by vibrations, like those caused by a large nearby vehicle or from heavy equipment such as a jackhammer.

Safety and Security

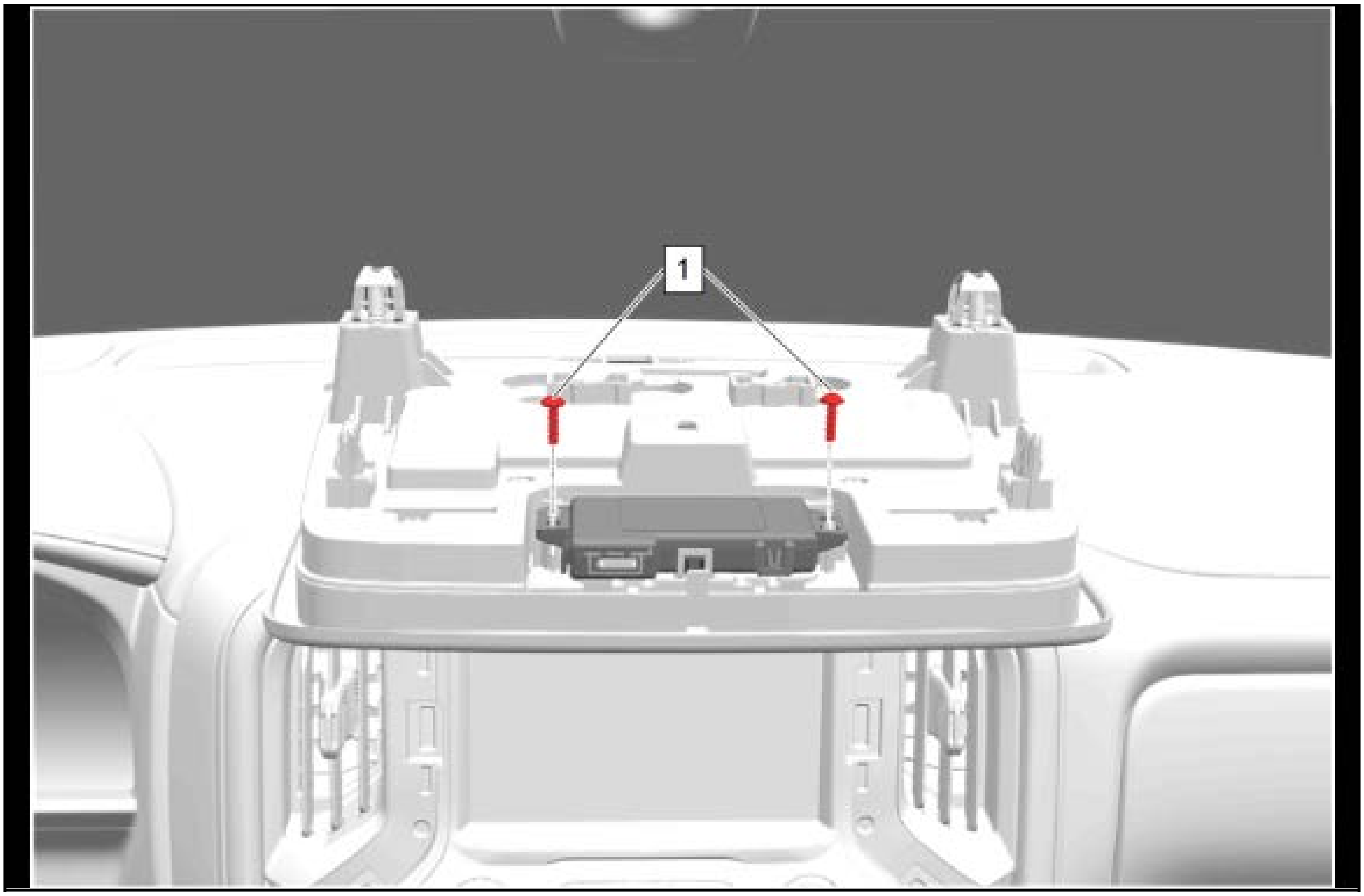
Remote Functions

Specifications

Fastener Specifications

Object-ID=6214275 Owner=Kowalski, Kamil LMD=07-Dec-2022 LMB=Adamczyk, Michael

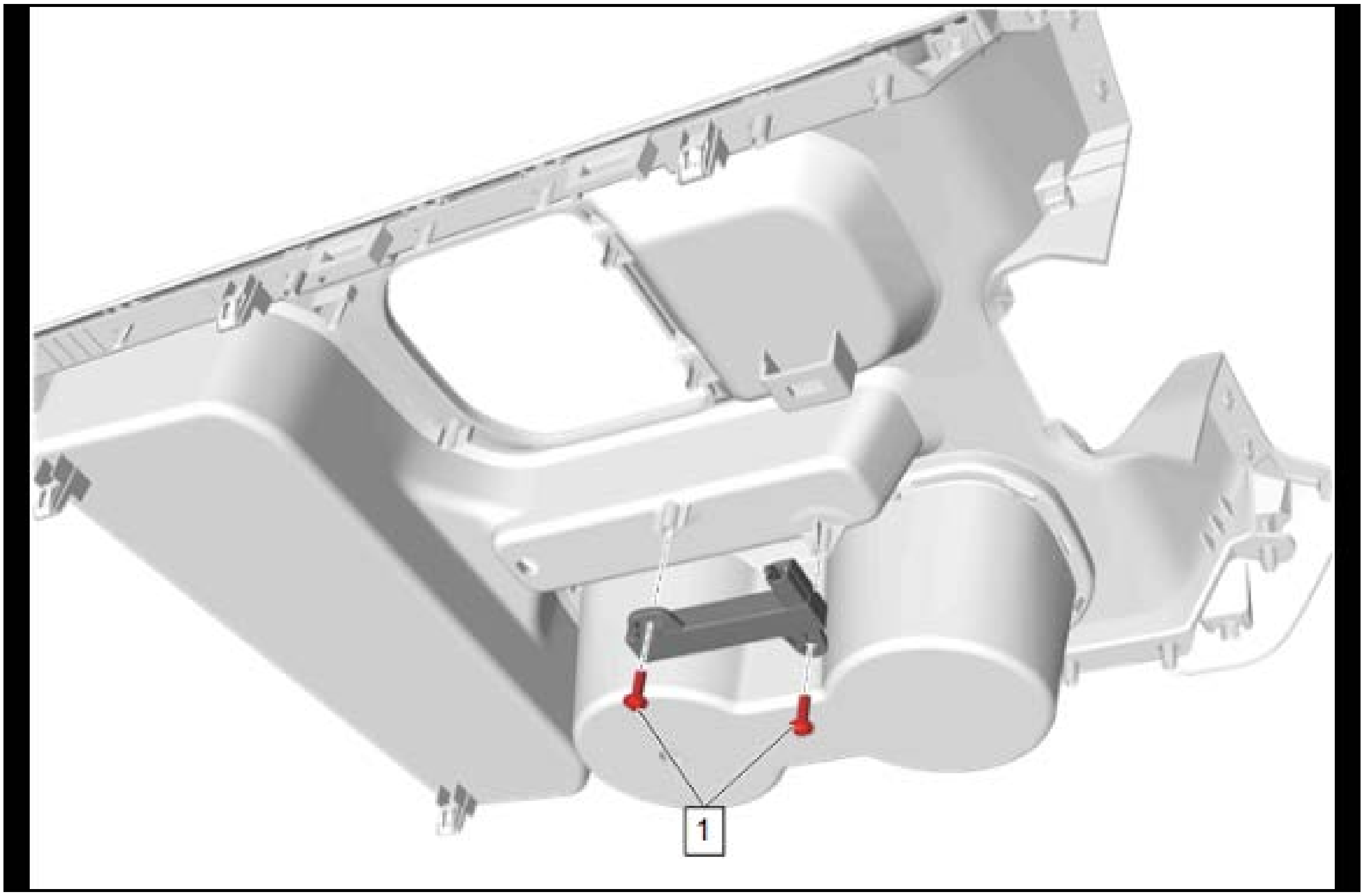
Fastener Specifications



5656820

Garage Door Opener Transmitter

Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Garage Door Opener Transmitter Bolt [2x]	—	—	1.5 N•m(13 lb in)	Garage Door Opener Transmitter Replacement on page 8-330

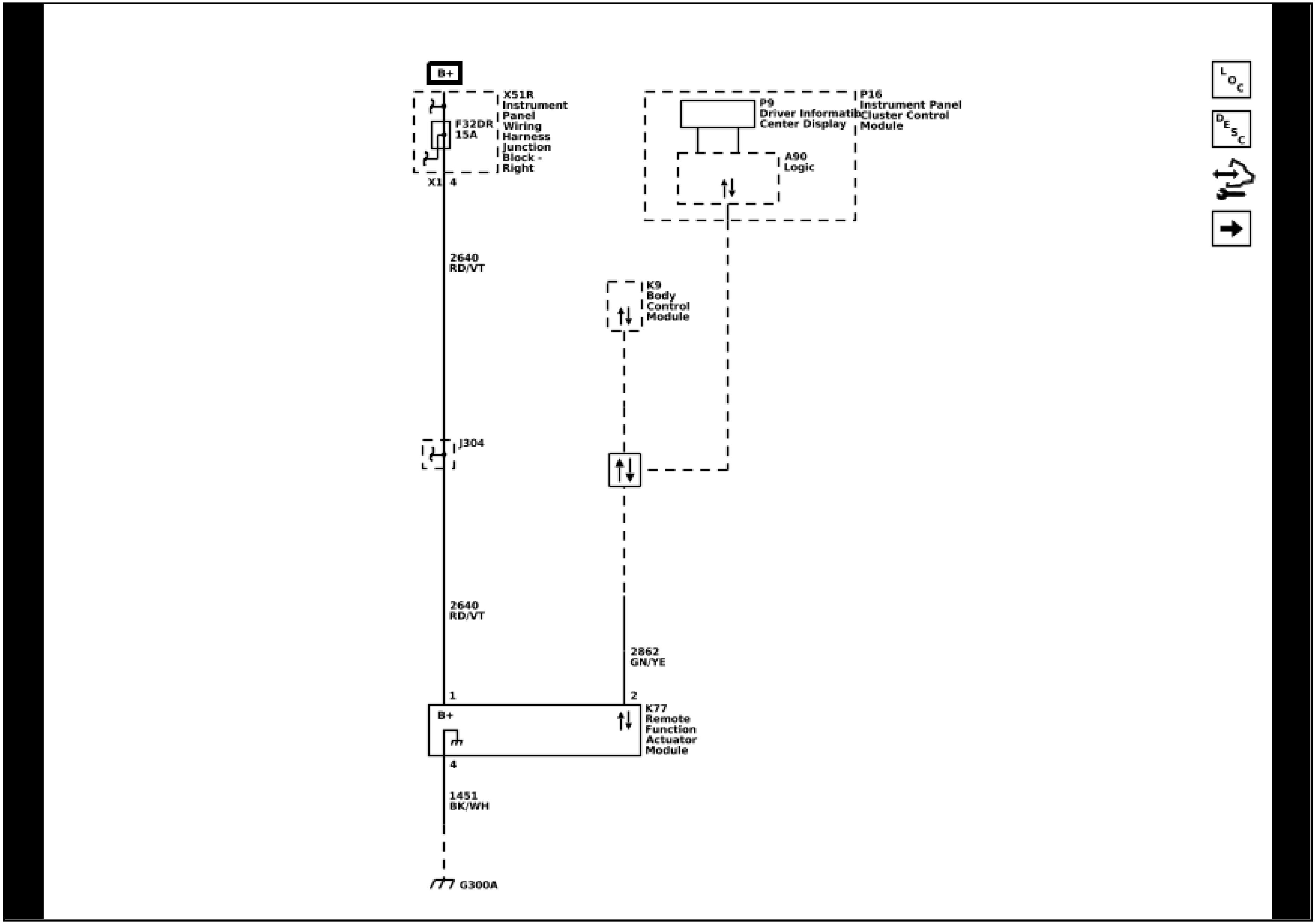


Low Frequency Console Antenna (D07)

Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Theft Deterrent Module Bolt [2x]	—	—	0.9 N•m(8 lb in)	Low Frequency Console Antenna Replacement on page 8-279 or Low Frequency Console Antenna Replacement on page 8-290

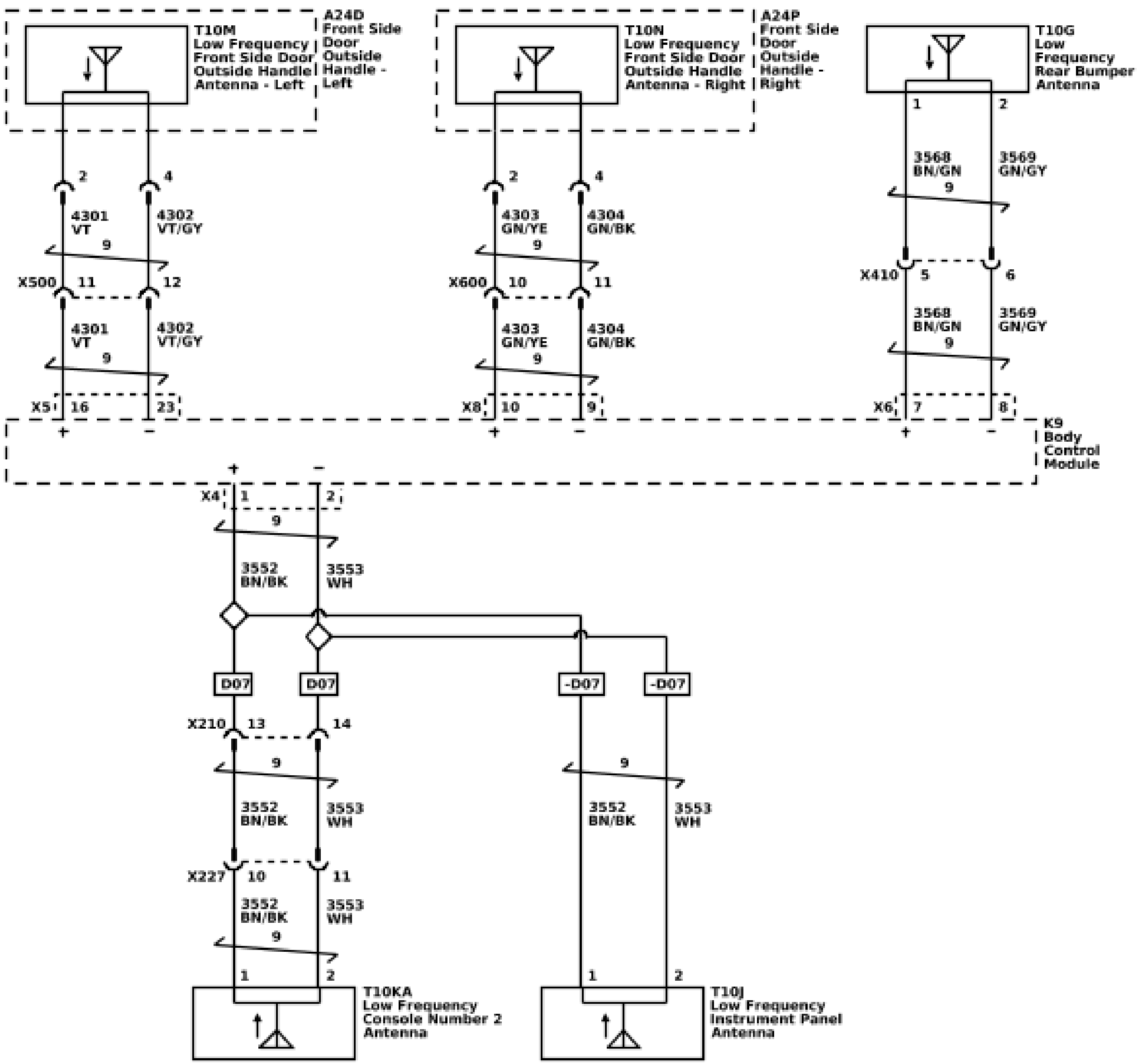
Schematic and Routing Diagrams

Remote Function Schematics Object-ID=6152412 (Keyless Entry (AQQ))


B+
X51R
Instrument
Panel
Wiring
Harness
Junction
Block -
Right
F32DR
15A
X1 4
2640
RD/VT
J304
2640
RD/VT
1
B+
4
1451
BK/WH
G300A
P16
Instrument Panel
Cluster Control
Module
P9
Driver Informatio
Center Display
A90
Logic
K9
Body
Control
Module
2862
GN/YE
2
K77
Remote
Function
Actuator
Module

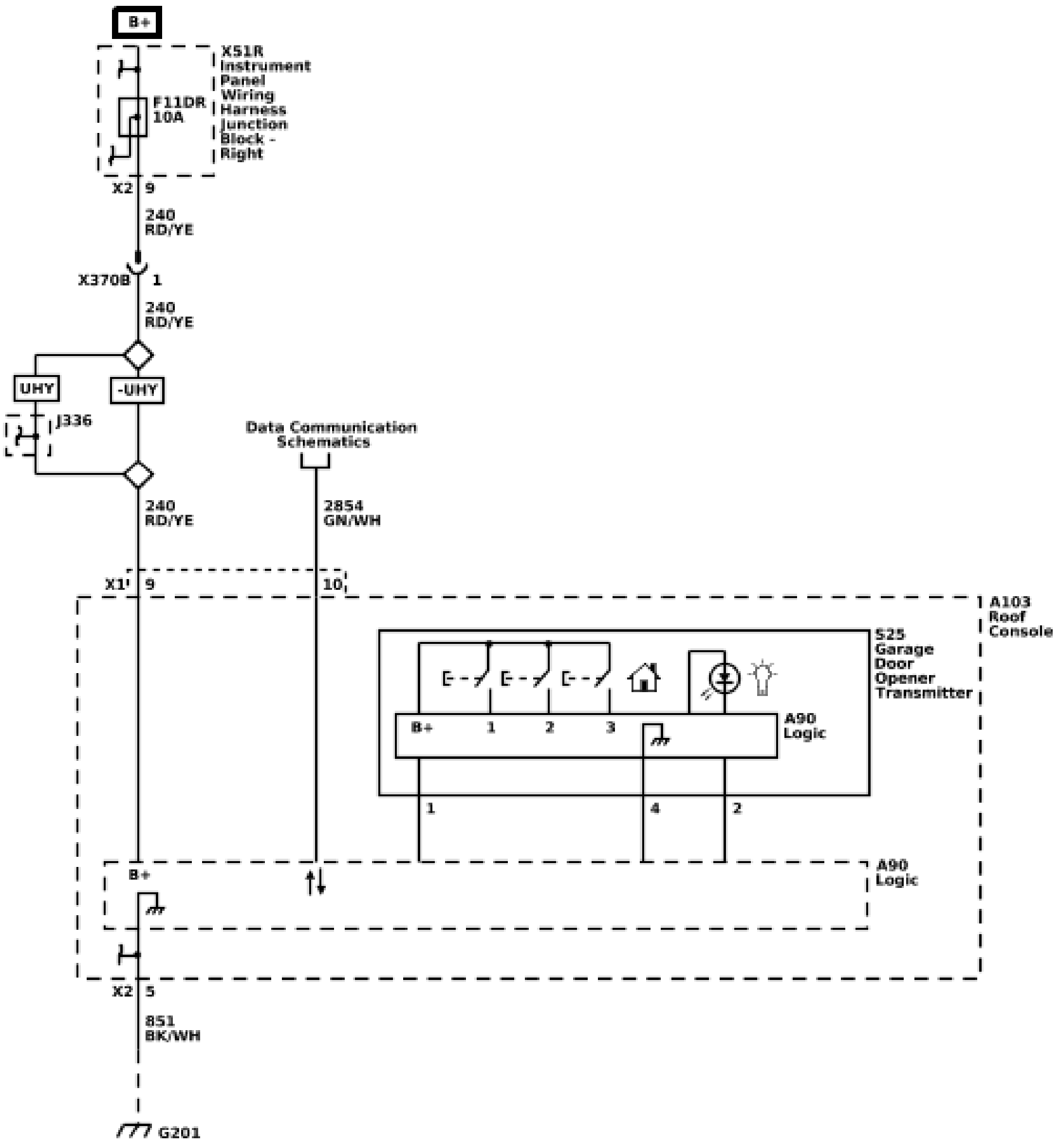
6150644

Remote Function Schematics Object-ID=6152412 (Keyless Entry - Passive and Keyless Start)


T10M
Low Frequency
Front Side Door
Outside Handle
Antenna - Left
A24D
Front Side
Door
Outside
Handle -
Left
2
4
4301
VT
4302
VT/GY
9
X500
11
12
4301
VT
4302
VT/GY
9
X5
16
23
+
−
T10N
Low Frequency
Front Side Door
Outside Handle
Antenna - Right
A24P
Front Side
Door
Outside
Handle -
Right
2
4
4303
GN/YE
4304
GN/BK
9
X600
10
11
4303
GN/YE
4304
GN/BK
9
X8
10
9
+
−
T10G
Low
Frequency
Rear Bumper
Antenna
1
2
3568
BN/GN
3569
GN/GY
9
X410
5
6
3568
BN/GN
3569
GN/GY
9
X6
7
8
+
−
K9
Body
Control
Module
+
−
X4
1
2
9
3552
BN/BK
3553
WH
D07
D07
-D07
-D07
X210
13
14
9
3552
BN/BK
3553
WH
X227
10
11
3552
BN/BK
3553
WH
9
1
2
T10KA
Low Frequency
Console Number 2
Antenna
9
3552
BN/BK
3553
WH
1
2
T10J
Low Frequency
Instrument Panel
Antenna

6150645

Remote Function Schematics Object-ID=6152412 (Garage Door Opener (UG1))


B+
X51R
Instrument
Panel
Wiring
Harness
Junction
Block -
Right
F11DR
10A
X2 9
240
RD/YE
X370B 1
240
RD/YE
UHY
-UHY
J336
240
RD/YE
Data Communication
Schematics
2854
GN/WH
X1' 9
10
A103
Roof
Console
S25
Garage
Door
Opener
Transmitter
B+
1
2
3
A90
Logic
1
4
2
A90
Logic
B+
X2 5
851
BK/WH
G201

6150646

Diagnostic Information and Procedures

DTC B1442

Object-ID=6157650 Owner=Day, Colin LMD=29-Nov-2022 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1442: Interior Keyless Entry Antenna 1 High Signal

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
4996	Keyless Entry Antenna 1 Signal – High Reference	B1442 11	B1442 13	B1442 12	—
4997	Keyless Entry Antenna 1 Signal – Low Reference	B1442 11	B1442 13	B1442 12	—

Circuit/System Description

The interior keyless entry antenna 1 is used to establish low frequency communications with the keyless entry transmitter. As the ignition switch is pressed the BCM will transmit low frequency signals to this interior keyless entry antenna 1.

Diagnostic Aids

The antenna must be installed correctly for proper performance. The precise location and orientation are important for the antenna to have the range and shape of range designed for each antenna location. There is a possibility that the passive entry system set a false DTC due to the antenna being incorrectly installed.

Conditions for Running the DTC

- The ignition switch is pressed or all the doors are closed.
- Battery voltage is between 9–16 V.

Conditions for Setting the DTC

B1442 11

The body control module detects a short to ground on the interior keyless entry antenna 1 signal circuit three or more times.

B1442 12

The body control module detects a short to voltage on the interior keyless entry antenna 1 signal circuit three or more times.

B1442 13

The body control module detects an open on the interior keyless entry antenna signal 1 circuit three or more times.

Action Taken When the DTC Sets

- Doors will not unlock/lock when the exterior door handle button is pressed.
- Reduced or no coverage of the keyless entry transmitter inside the vehicle when the ignition switch is pressed or all doors are closed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 40 malfunction-free ignition cycles.

Reference Information

Schematic Reference

- *Immobilizer Schematics on page 8-12*
- *Power Moding Schematics on page 7-825*

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

Note: Verify the antenna is installed correctly and not damaged.

1. Ignition OFF, disconnect the harness connector at the T10UA Low Frequency Console Antenna, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Activate the antenna by pressing the Stop/Start switch.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Activate the antenna by pressing the Stop/Start switch.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the T10UA Low Frequency Console Antenna.
11. Activate the antenna by pressing the Stop/Start switch a minimum of three times to meet the conditions for setting the DTC.
12. Verify DTC B1442 is not set.

⇒ **If DTC B1442 is set**

Replace the K9 Body Control Module.

⇓ **If DTC B1442 is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Low Frequency Console Antenna Replacement on page 8-279* or *Low Frequency Console Antenna Replacement on page 8-290*
- Control Module References for module replacement, programming, and setup

DTC B1444

Object-ID=5905431 Owner=Day, Colin LMD=27-Jan-2023 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1444: Low Frequency Console Number 2 Antenna Signal Hi

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
3552	Low Frequency Console Number 2 Antenna Signal Hi — High Reference	B1444 11	B1444 13	B1444 12	—
3553	Low Frequency Console Number 2 Antenna Signal Hi — Low Reference	B1444 11	B1444 13	B1444 12	—

Circuit/System Description

The passive start interior antenna 2 is located inside of the rear of the center console and is used to establish low frequency communications with the keyless entry transmitter. As the ignition switch is pressed the BCM will transmit low frequency signals to this interior keyless entry antenna 2.

Diagnostic Aids

The antenna must be installed correctly for proper performance. The precise location and orientation are important for the antenna to have the range and shape of range designed for each antenna location. There is a possibility that the passive entry system set a false DTC due to the antenna being incorrectly installed.

Conditions for Running the DTC

The ignition switch is pressed or all the doors are closed.

Conditions for Setting the DTC

B1444 11

The body control module detects a short to ground on the Low Frequency Console Number 2 Antenna signal circuit three or more times.

B1444 12

The body control module detects a short to voltage on the Low Frequency Console Number 2 Antenna signal circuit three or more times.

B1444 13

The body control module detects an open on the Low Frequency Console Number 2 Antenna signal 2 circuit three or more times.

Action Taken When the DTC Sets

- Doors will not unlock/lock when the exterior door handle button is pressed.
- Reduced or no coverage of the keyless entry transmitter inside the vehicle when the ignition switch is pressed or all doors are closed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 50 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

Note: Verify the antenna is installed correctly and not damaged.

1. Ignition OFF, disconnect the harness connector at the T10KA Low Frequency Console Number 2 Antenna, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Activate the antenna by pressing the Stop/Start switch.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Activate the antenna by pressing the Stop/Start switch.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the T10KA Low Frequency Console Number 2 Antenna.
11. Activate the antenna by pressing the Stop/Start switch a minimum of three times to meet the conditions for setting the DTC.
12. Verify DTC B1444 is not set.

⇒ **If DTC B1444 is set**

Replace the K9 Body Control Module.

⇓ **If DTC B1444 is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Low Frequency Console Number 2 Antenna Replacement on page 8-308*
- Control Module References for module replacement, programming, and setup

DTC B1444

Object-ID=5962728 Owner=Day, Colin LMD=27-Jan-2023 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1444: Passive Start Interior Antenna 2 Signal High

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
3552	Passive Start Interior Antenna 2 Signal High — High Reference	B1444 11	B1444 13	B1444 12	—
3553	Passive Start Interior Antenna 2 Signal High — Low Reference	B1444 11	B1444 13	B1444 12	—

Circuit/System Description

The passive start interior antenna 2 is located inside of the rear of the center console and is used to establish low frequency communications with the keyless entry transmitter. As the ignition switch is pressed the BCM will transmit low frequency signals to this interior keyless entry antenna 2.

Diagnostic Aids

The antenna must be installed correctly for proper performance. The precise location and orientation are important for the antenna to have the range and shape of range designed for each antenna location. There is a possibility that the passive entry system set a false DTC due to the antenna being incorrectly installed.

Conditions for Running the DTC

The ignition switch is pressed or all the doors are closed.

Conditions for Setting the DTC

B1444 11

The body control module detects a short to ground on the passive start interior antenna 2 signal circuit three or more times.

B1444 12

The body control module detects a short to voltage on the passive start interior antenna 2 signal circuit three or more times.

B1444 13

The body control module detects an open on the passive start interior antenna signal 2 circuit three or more times.

Action Taken When the DTC Sets

- Doors will not unlock/lock when the exterior door handle button is pressed.
- Reduced or no coverage of the keyless entry transmitter inside the vehicle when the ignition switch is pressed or all doors are closed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 50 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

Note: Verify the antenna is installed correctly and not damaged.

1. Ignition OFF, disconnect the harness connector at the T10J Low Frequency Instrument Panel Antenna, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Activate the antenna by pressing the Stop/Start switch.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Activate the antenna by pressing the Stop/Start switch.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the T10J Low Frequency Instrument Panel Antenna.
11. Activate the antenna by pressing the Stop/Start switch a minimum of three times to meet the conditions for setting the DTC.
12. Verify DTC B1444 is not set.

⇒ **If DTC B1444 is set**

Replace the K9 Body Control Module.

⇓ **If DTC B1444 is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Low Frequency Instrument Panel Antenna Replacement on page 8-267*
- Control Module References for module replacement, programming, and setup

DTC B1451

Object-ID=5279118 Owner=Day, Colin LMD=01-Feb-2023 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1451: Passive Entry Rear Closure Antenna Signal Hi

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
3568	Passive Entry Rear Closure Antenna Signal Hi — High Reference	B1451 11	B1451 13	B1451 12	—
3569	Passive Entry Rear Closure Antenna Signal Hi — Low Reference	B1451 11	B1451 13	B1451 12	—

Circuit/System Description

The antenna is located behind the rear fascia and is used to establish low frequency communications with the keyless entry transmitter. As a vehicle with locked doors is approached with a keyless entry transmitter and the trunk touch pad is pressed, the body control module communicates with the keyless entry antenna.

Diagnostic Aids

The antenna must be installed correctly for proper performance. The precise location and orientation are important for the antenna to have the range and shape of range designed for each antenna location. There is a possibility that the passive entry system set a false DTC due to the antenna being incorrectly installed.

Conditions for Running the DTC

The trunk touch pad is pressed or all the doors are closed.

Conditions for Setting the DTC

B1451 11

The body control module detects a short to ground on the passive entry rear closure antenna signal circuit three or more times.

B1451 12

The body control module detects a short to voltage on the passive entry rear closure antenna signal circuit three or more times.

B1451 13

The body control module detects an open on the passive entry rear closure antenna circuit three or more times.

Action Taken When the DTC Sets

- Rear closure will not open when the trunk touch pad is pressed if the vehicle is locked.
- Reduced or no coverage of the keyless entry transmitter outside the vehicle when the trunk touch pad is pressed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 50 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

Note: Verify the antenna is installed correctly and not damaged.

1. Ignition OFF, disconnect the harness connector at the T10G Low Frequency Rear Bumper Antenna, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Activate the antenna by pressing the trunk touch pad.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Activate the antenna by pressing the trunk touch pad.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the T10G Low Frequency Rear Bumper Antenna.
11. Activate the antenna by pressing the trunk touch pad a minimum of three times to meet the conditions for setting the DTC
12. Verify DTC B1451 is not set.

⇒ **If DTC B1451 is set**

Replace the K9 Body Control Module.

⇓ **If DTC B1451 is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Low Frequency Rear Bumper Antenna Replacement on page 8-316*
- Control Module References for module replacement, programming, and setup

DTC B1511

Object-ID=5962730 Owner=Day, Colin LMD=26-Jan-2023 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1511: Passive Entry Left Front Antenna Signal High

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
4301	Passive Entry Left Front Antenna Signal – High Reference	B1511 11	B1511 13	B1511 12	—
4302	Passive Entry Left Front Antenna Signal – Low Reference	B1511 11	B1511 13	B1511 12	—

Circuit/System Description

The left body antenna is located behind the rocker assembly and is used to establish low frequency communications with the keyless entry transmitter. As a vehicle with locked doors is approached with a keyless entry transmitter and the exterior door handle button or door handle touch pad is pressed, the body control module communicates with the left body antenna.

Diagnostic Aids

The antenna must be installed correctly for proper performance. The precise location and orientation are important for the antenna to have the range and shape of range designed for each antenna location. There is a possibility that the passive entry system set a false DTC due to the antenna being incorrectly installed.

Conditions for Running the DTC

The left exterior door handle button/door handle touch pad is pressed or all the doors are closed.

Conditions for Setting the DTC

B1511 11

The body control module detects a short to ground on the passive entry left front keyless entry antenna signal circuit three or more times.

B1511 12

The body control module detects a short to voltage on the passive entry left front keyless entry antenna signal circuit three or more times.

B1511 13

The body control module detects an open on the passive entry left front keyless entry antenna circuit three or more times.

Action Taken When the DTC Sets

- Left door will not open when the left door handle button/door touch pad is pressed if the vehicle is locked.
- Reduced or no coverage of the keyless entry transmitter outside the vehicle when the left door handle button/touch pad is pressed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 50 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

Note: Verify the antenna is installed correctly and not damaged.

1. Ignition ON.
2. Verify DTC B1444, B1446, or B1451 is not set.

⇒ **If any of the DTCs are set**

Diagnostic Trouble Code (DTC) List - Vehicle

⇓ **If none of the DTCs are set**

3. Refer to Circuit/System Testing.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the T10M Low Frequency Front Side Door Outside Handle Antenna — Left, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 2 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by pressing the exterior door handle button/touch pad.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 4 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 2 and the low reference circuit terminal 4. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by pressing the exterior door handle button/touch pad.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the T10M Low Frequency Front Side Door Outside Handle Antenna — Left.
11. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by pressing the exterior door handle button/touch pad minimum of three times to meet the conditions for setting the DTC.
12. Verify DTC B1511 is not set.

⇒ **If DTC B1511 is set**

Replace the K9 Body Control Module.

⇓ **If DTC B1511 is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Front Side Door Outside Handle Replacement
- Control Module References for module replacement, programming, and setup

DTC B1513

Object-ID=5962731 Owner=Day, Colin LMD=12-Jan-2022 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1513: Passive Entry Right Front Door Antenna Signal High

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
4303	Passive Entry Right Front Door Antenna Signal – High Reference	B1513 11	B1513 13	B1513 12	—
4304	Passive Entry Right Front Door Antenna Signal – Low Reference	B1513 11	B1513 13	B1513 12	—

Circuit/System Description

The right body antenna is located behind the rocker assembly and is used to establish low frequency communications with the keyless entry transmitter. As a vehicle with locked doors is approached with a keyless entry transmitter and the exterior door handle button or door handle touch pad is pressed, the body control module communicates with the right body antenna.

Diagnostic Aids

The antenna must be installed correctly for proper performance. The precise location and orientation are important for the antenna to have the range and shape of range designed for each antenna location. There is a possibility that the passive entry system set a false DTC due to the antenna being incorrectly installed.

Conditions for Running the DTC

The right exterior door handle button/door handle touch pad is pressed or all the doors are closed.

Conditions for Setting the DTC

B1513 11

The body control module detects a short to ground on the passive entry right front door keyless entry antenna signal circuit three or more times.

B1513 12

The body control module detects a short to voltage on the passive entry right front door keyless entry antenna signal circuit three or more times.

B1513 13

The body control module detects an open on the passive entry right front door keyless entry antenna circuit three or more times.

Action Taken When the DTC Sets

- Right door will not open when the right door handle button/door touch pad is pressed if the vehicle is locked.
- Reduced or no coverage of the keyless entry transmitter outside the vehicle when the right door handle button/touch pad is pressed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 50 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

Note: Verify the antenna is installed correctly and not damaged.

1. Ignition ON.
2. Verify DTC B1444, B1446, or B1451 is not set.

⇒ **If any of the DTCs are set**

Refer to Diagnostic Trouble Code (DTC) List - Vehicle.

⇓ **If none of the DTCs are set**

3. Refer to Circuit/System Testing.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the appropriate T10 Keyless Entry Antenna, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by pressing the exterior door handle button/touch pad.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by pressing the exterior door handle button/touch pad.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the appropriate T10 Keyless Entry Antenna.

11. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by pressing the exterior door handle button/touch pad minimum of three times to meet the conditions for setting the DTC.
12. Verify DTC B1513 is not set.

⇒ **If DTC B1513 is set**

Replace the K9 Body Control Module.

⇓ **If DTC B1513 is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Front Side Door Outside Handle Replacement
- Control Module References for module replacement, programming, and setup

DTC B1AAE

Object-ID=5279230 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1AAE: Passive Entry Closure 2 Antenna Signal High

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
3544	Passive Entry Front Closure 2 Keyless Entry Antenna Signal High– High Reference	B1AAE 11	B1AAE 13	B1AAE 12	—
3545	Passive Entry Front Closure 2 Keyless Entry Antenna Signal High – Low Reference	B1AAE 11	B1AAE 13	B1AAE 12	—

Circuit/System Description

The antenna is located behind the front fascia and is used to establish low frequency communications with the keyless entry transmitter. As a vehicle with locked doors is approached with a keyless entry transmitter and the front touch pad is pressed, the body control module communicates with the keyless entry antenna.

Diagnostic Aids

The antenna must be installed correctly for proper performance. The precise location and orientation are important for the antenna to have the range and shape of range designed for each antenna location. There is a possibility that the passive entry system set a false DTC due to the antenna being incorrectly installed.

Conditions for Running the DTC

The front closure touch pad is pressed or all the doors are closed.

Conditions for Setting the DTC

B1AEE 11

The keyless entry control module detects a short to ground on the front closure antenna signal circuit.

B1AEE 12

The keyless entry control module detects a short to voltage on the front closure antenna signal circuit.

B1AEE 13

The keyless entry control module detects an open on the front closure antenna signal circuit.

Action Taken When the DTC Sets

- Front closure will not open when the front touch pad is pressed if the vehicle is locked.
- Reduced or no coverage of the keyless entry transmitter outside the vehicle when the front touch pad is pressed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 50 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

Note: Verify the antenna is installed correctly and not damaged.

1. Ignition OFF, disconnect the harness connector at the T10W Low Frequency Front Bumper Antenna, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Activate the antenna by pressing the front touch pad.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Activate the antenna by pressing the front touch pad.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the T10W Low Frequency Front Bumper Antenna.
11. Activate the antenna by pressing the trunk touch pad a minimum of three times to meet the conditions for setting the DTC
12. Verify DTC B1AAE is not set.

⇒ **If DTC B1AAE is set**

Replace the K9 Body Control Module.

⇓ **If DTC B1AAE is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Low Frequency Front Bumper Antenna Replacement
- Control Module References for module replacement, programming, and setup

DTC B1AAF

Object-ID=5502909 Owner=Day, Colin LMD=21-Jul-2021 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1AAF: Passive Entry Closure 2 Antenna Signal Low

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit Number	Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
3556	Passive Entry Closure 2 Antenna Signal Low – High Reference	B1AAF 11	B1AAF 13	B1AAF 12	—
3557	Passive Entry Closure 2 Antenna Signal Low – Low Reference	B1AAF 11	B1AAF 13	B1AAF 12	—

Circuit/System Description

The passive entry closure 2 antenna is located inside of the front compartment and is used to establish low frequency communications with the keyless entry transmitter. As the ignition switch is pressed the BCM will transmit low frequency signals to this passive entry closure 2 antenna.

Conditions for Running the DTC

- The ignition switch is pressed or all the doors are closed.
- Battery voltage is between 9–16 V.

Conditions for Setting the DTC

B1AAF 11

The body control module detects a short to ground on the passive entry closure 2 antenna signal low circuit three or more times.

B1AAF 12

The body control module detects a short to voltage on the passive entry closure 2 antenna signal low circuit three or more times.

B1AAF 13

The body control module detects an open on the passive entry closure 2 antenna signal low circuit three or more times.

Action Taken When the DTC Sets

- Doors will not unlock/lock when the exterior door handle button is pressed.
- Reduced or no coverage of the keyless entry transmitter inside the vehicle when the ignition switch is pressed or all doors are closed.
- The service keyless start system message will display in the DIC.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 50 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs

- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the T10X Low Frequency Front Compartment Antenna, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

2.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

3. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
4. Activate the antenna by pressing the Stop/Start switch.
5. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

5.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

6. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

6.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

6.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

7. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
8. Activate the antenna by pressing the Stop/Start switch.
9. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

9.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

9.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

10. Replace the T10X Low Frequency Front Compartment Antenna.
11. Activate the antenna by pressing the Stop/Start switch a minimum of three times to meet the conditions for setting the DTC.
12. Verify DTC B1AAF is not set.

⇒ **If DTC B1AAF is set**

Replace the K9 Body Control Module.

⇓ **If DTC B1AAF is not set**

13. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Low Frequency Front Compartment Antenna Replacement
- Control Module References for module replacement, programming, and setup

DTC B1AEE

Object-ID=5279252 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1AEE: Key Fob Motion Sensor Performance

For symptom byte information, refer to Symptom Byte List.

Circuit/System Description

Keyless entry transmitters contain a motion sensor. The BCM monitors the type of motion that the keyless entry transmitter is experiencing and if it is a type of motion consistent with a customer starting or unlocking a vehicle then it will allow the requested function. If the BCM detects motion that is considered inconsistent with a customer starting or unlocking a vehicle then it will not allow the requested function. The purpose of this is to try to prevent unwanted detection of the keyless entry data.

Conditions for Running the DTC

The BCM continuously monitors for this DTC.

Conditions for Setting the DTC

The BCM detects the fault 10 times or more.

Action Taken When the DTC Sets

- The service keyless start system message will display in the DIC.
- Passive entry and vehicle starting will be disabled.

Conditions for Clearing the DTC

A current DTC will be cleared when the module learns a correct environment identifier.

Reference Information

Schematic Reference

Immobilizer Schematics on page 8-12

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Immobilizer Description and Operation on page 8-35

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

Note: All of the vehicle keyless entry transmitters that are learned to the vehicle must be present to perform the diagnostic. The total number of transmitters learned to the vehicle is available in scan tool data lists. If a transmitter is not present and is the transmitter causing the DTC to set then the DTC will return as soon as that transmitter is used.

1. Verify DTC B1AEE is not set.

⇒ **If the DTC is set**

   1.1. Clear the DTC.

   1.2. With only one transmitter inside the vehicle and all other transmitters at least 10 meters away from the vehicle, perform ten consecutive passive entry functions. For example opening and closing the driver door ten times with a 1.5 s pause between each opening.

   1.3. Verify the DTC does not set.

   ⇒ If the DTC sets, replace the malfunctioning transmitter.

   ⇓ If the DTC does not set

   1.4. Repeat the procedure for each additional transmitter.

⇓ **If the DTC is not set**

2. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

Symptoms - Remote Functions

Object-ID=5542565 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Important: The following steps must be completed before using the symptom tables.

1. Perform Diagnostic System Check - Vehicle before using the Symptom Tables in order to verify that all of the following are true:
   - There are no DTCs set.
   - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to *Keyless Entry System Description and Operation on page 8-337*.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Keyless Entry System. Refer to Checking Aftermarket Accessories.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to Testing for Intermittent Conditions and Poor Connections.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- *Keyless Entry System Malfunction on page 8-249*

Symptoms - Front Side Door Access Control Transmitter

Object-ID=6049313 Owner=Day, Colin LMD=12-Apr-2022 LMB=Day, Colin

Note: The following steps must be completed before using the symptom tables.

1. Perform Diagnostic System Check - Vehicle before using the Symptom Tables in order to verify that all of the following are true:
   - There are no DTCs set.
   - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to *Front Side Door Access Control Transmitter Description and Operation on page 8-336*.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Keyless Entry System. Refer to Checking Aftermarket Accessories.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections, wiring, terminals, connectors, poor voltage and ground connections, temperature sensitivity, electromagnetic interference, electrical noise and/or incorrect control module installed may be the cause of intermittent conditions. Refer to Testing for Intermittent Conditions and Poor Connections.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- *Front Side Door Access Control Transmitter Malfunction on page 8-254*
- *Keyless Entry System Malfunction on page 8-249*

Garage Door Opener Malfunction

Object-ID=2596215 Owner=Day, Colin LMD=14-Dec-2021 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	1	1	—	—
Ground	—	1	—	—
1. Universal Home Remote Malfunction				

Circuit/System Description

The universal home remote is a transmitter operating between 288 and 434 MHz. The universal home remote has three buttons that may be programmed for individual transmitter/receiver combinations to control up to three garage doors, security gates, lighting systems, etc. Each button represents a unique transmitter code section, which operates independently of the other buttons, and may be considered a separate transmitter.

Diagnostic Aids

Note: This procedure will clear any learned transmitters from the S25 Garage Door Opener. This will require reprogramming by the customer to reestablish universal home remote functionality. The vehicle must be with the item being programmed, for example at the customer's garage. Programming involves time-sensitive actions, and may time out causing the procedure to be repeated.

To program up to three devices:

1. Hold the end of the hand-held transmitter for the garage door opener or device being programmed about 3 to 8 cm (1 to 3 in) away from the Universal Remote system buttons with the indicator light in view..

   Note: Radio signals for some gate operators follow different rules. It may be necessary to follow the instructions regarding gates at the end of the second set of three steps.

3. Press and release one of the three Universal Remote system buttons that you would like to program. Press and hold the hand-held transmitter button. Do not release the hand-held transmitter button until the indicator light changes from a slow to a rapid flashing light or a continuously on light. Then release the button.
4. Press and hold the newly programmed Universal Remote system button for five seconds while watching the indicator light and garage door activation.

- If the indicator light nstays on continuously or the garage door moves when the button is pressed, then programming is complete.
- If the indicator light does not come on or the garage door does not move, a second button press may be required. For a second time, press and hold the newly programmed button for five seconds. If the light stays on or the garage door moves, programming is complete.
- If the indicator light blinks rapidly for two seconds then changes to a solid light and the garage door does not move perform the additional 3 steps below.

1. Locate the Learn or Smart button inside the garage on the garage door receiver. The name and color of the button may vary by manufacturer.
2. Press and release the Learn or SMart button. The following step, step 3, must be completed within 30 seconds of pressing this button.
3. Inside the vehicle, press and hold the newly programmed Universal Remote system button for three seconds and then release it. IIf the garage door does not move or the lamp on the garage door receiver does not flash, press and hold the same button a second time for three seconds then release it. Again, if the door does not move or the garage door lamp does not flash , press and hold the same button a third time for three seconds then release it..

The Universal Remote system should now activate the garage door. Repeat the process for additional buttons.

Note: Radio signals for some gate operators follow different rules. Follow these instructions.

Some radio-frequency laws and gate operators require transmitter signals to time out or quit after several seconds of transmission. This may not be long enough for the Universal Remote system to pick up the signal during programming.

If the programming did not work, replace Step 2 under "Programming the Universal Remote System" with the following:

Press and hold the Universal Remote system button while pressing and releasing the hand-held transmitter button every two seconds until the signal has been successfully accepted by the Universal Remote system. The Universal Remote system indicator light will flash slowly at first and then rapidly. Proceed with Step 3 under "Programming the Universal Remote System" to complete.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Garage Door Opener Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Special Tools

J 41540 Universal Home Remote Tester

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S25 Garage Door Opener.
2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.

⇒ **If 10 Ω or greater**

Test for less than 2 Ω in the ground circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, repair the open/high resistance in the ground connection.

⇓ **If less than 10 Ω**

3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 1 and ground.

⇒ **If the test lamp does not illuminate and the circuit fuse is good**

  4.1. Ignition OFF.
  4.2. Test for less than 2 Ω in the B+ circuit end to end.

    ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

    ⇒ If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.

⇒ **If the test lamp does not illuminate and the circuit fuse is open**

  4.1. Ignition OFF.
  4.2. Test for infinite resistance between the B+ circuit and ground.

    ⇒ If less than infinite resistance, repair the short to ground on the circuit.

    ⇒ If infinite resistance, replace the S25 Garage Door Opener.

⇓ **If the test lamp illuminates**

5. Verify the LED on the S25 Garage Door Opener illuminates or flashes when each button on the S25 Garage Door Opener is pressed.

⇒ **If the LED does not illuminate or flash when each button is pressed**

    Replace the S25 Garage Door Opener.

⇓ **If the LED illuminates or flashes when each button is pressed**

6. Instruct the customer to program the S25 Garage Door Opener to their device. Refer to the vehicle owners manual. If further malfunction occurs, a possible rolling code or incompatibility with the S25 Garage Door Opener will prevent programming.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for module replacement, programming, and setup.

Keyless Entry System Malfunction

Object-ID=5962732 Owner=Day, Colin LMD=22-Mar-2023 LMB=Day, Colin

Circuit/System Description

This procedure should be followed for any system malfunction, Service Keyless Start System message, No Remote Detected message, or Key Missing Look For Key message that does not have a DTC present. All of the functions and features of the active and passive keyless entry system, along with the tire pressure monitoring system are tied together through the use of radio frequency to communicate. Determining which features and functions of the systems have failed will suggest what the fault could be and therefore the best diagnostic procedure to follow.

The keyless entry transmitters can only be programmed to one vehicle. They can be programmed more than once but only to the same VIN. Once a keyless entry transmitter is programmed to a vehicle it cannot be programmed to a different vehicle but it can be programmed to the same VIN as much as necessary to complete the diagnostic procedures being followed.

The keyless entry antennas are used as short range low frequency (LF) transmitters. The LF signal is at 125 kHz. High frequencies are also used by the system and they are 315 MHz except for vehicles built to be certified for use in Japan which are 433 MHz. As a vehicle with locked doors is approached with a keyless entry transmitter (remote key) and the exterior door handle/rear closure touch pad is pressed, the keyless entry antenna broadcasts a challenge to the remote key in an approximate one meter range. If the response from the transmitter via radio frequency (RF) is valid, the locked door will be passively unlocked/unlatched and allow the door to be opened.

A low transmitter battery may cause a system malfunction. More often a malfunction is the result of radio frequency (RF) interference from aftermarket devices which could include unexpected items such as nearby flat screen televisions, darkness sensing flood lights, or nearby cell phones. Other more common items that can cause a malfunction are 2-way radios, power inverters, cellular phone chargers, wireless cellular phone chargers, computers, 12 V power outlet USB adapters, etc. High RF traffic areas, such as gas stations which use pay-at-the-pump RF transponders, may also cause interference that could lead to a malfunction.

Diagnostic Aids

The keyless entry antennas must be installed correctly for proper performance. The precise location and orientation are important for the antenna to have the range and shape of range designed for each antenna location. There is a possibility that the passive entry system set a false DTC due to the antenna being incorrectly installed.

Unwanted or inadvertent door lock/unlock activation may be requested by the OnStar® Remote Link app. It is possible that a customer may be unaware of account usage, resulting in an unwanted or phantom door lock/unlock. If normal system diagnosis results in an inability to verify the customer's concern, contact Technical Assistance Center (TAC).

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs

- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Special Tools

EL-52545 Tire Pressure Monitor Sensor and RF Diagnostic Tool

Circuit/System Verification

Note: The passive entry system unlocking function can be disabled through the transmitter or the center stack. The center stack displays the status of the feature. If the feature is disabled the exterior lights will flash quickly 4 times when the passive entry door button is pressed. Refer to owners manual for more information.

In order to determine the best starting point to begin diagnosis first determine which features on the vehicle are functioning correctly or not. By performing a simple and quick check on the vehicle it can be determined if there is or isn’t a fault in each feature. If any one part of the feature is faulty then the feature status is failed.

Match the status of all four features and go the suggested link to begin diagnosis.

Active Keyless Entry Verification

1. Ignition off, stand approximately 3 meters (15 feet) from the vehicle.
2. Verify the transmitter opens the trunk/rear closure of the vehicle, if equipped.
3. Verify the transmitter locks and unlocks the vehicle.
4. Verify the transmitter other optional functions operate (for example — Panic, Remote Start, Convertible Top).

⇒ **If equipped with a trunk/rear closure and not opening or any of the other optional functions**

Refer to Keyless Entry Transmitter Malfunction in Circuit/System Testing below,

⇓ **If the vehicle either does not lock or does not unlock**

Continue verification of the other functions. This function is Failed.

⇓ **If the vehicle locks and unlocks**

5. All OK. This function Passed.

Passive Starting Function Status

Note: Perform this verification with each of the transmitters separately. If the concern is only present with one transmitter then the fault is likely with the one transmitter.

1. Enter the vehicle, ignition OFF.
2. Repeat this step with each transmitter separately and with the transmitter not being verified located 3 meters (15 feet) from the vehicle. Place the transmitter on the passenger seat and verify the vehicle starts using the start/stop switch then move the transmitter to the rear seat and verify the vehicle starts using the start/stop switch.

⇒ **If the vehicle does not start with one transmitter**

Refer to Keyless Entry Transmitter Malfunction in Circuit/System Testing below.

⇒ **If the vehicle does not start with both transmitters**

3. Continue verification of the other functions. This function is Failed.

⇓ **If the vehicle starts**

4. All OK. This function Passed.

Passive Entry Function Status, if equipped and if not equipped then ignore the column in the chart

Note: The passive entry system unlocking function can be disabled through the transmitter or the center stack. The center stack displays the status of the feature. If the feature is disabled the exterior lights will flash quickly 4 times when the passive entry door button is pressed. Refer to owners manual for more information.

1. Ignition off, approach the locked vehicle.
2. Verify the trunk/rear closure, if equipped, opens using the passive entry button or touch pad.
3. Verify all the doors unlock and open using the passive entry button or touch pad.

⇒ **If one or two doors on the same side do not unlock and open or only the trunk/rear closure does not open**

Refer to Keyless Entry Antenna Malfunction in Circuit/System Testing below.

⇓ **If all the doors do not unlock and open through passive entry**

Continue verification of the other functions. This function is Failed.

⇓ **If all the doors unlock and open through passive entry and the trunk/rear closure opens**

4. All OK. This function Passed.

Tire Pressure Monitoring System Function Status

1. Ignition on, enter the vehicle.
2. Verify all four tire pressures are displayed.

⇒ **If one pressure is not displayed**

Refer to Symptoms - Tire Pressure Monitoring

⇓ **If all of tire pressures do not display**

This function is Failed. Go to the Circuit/System Testing below as indicated by the Pass/Fail results in the chart.

⇓ **If all the tire pressures are displayed**

3. All OK. This function Passed. Go to the Circuit/System Testing below as indicated by the Pass/Fail results in the chart.

Keyless Entry System Malfunction

Active Keyless Entry Function Status	Passive Starting Function Status	Passive Entry Function Status	Tire Pressure Monitoring System Status	Most Probable Diagnostic Starting Point
Passed	Passed	Passed	If one or all four readings are missing	Symptoms - Tire Pressure Monitoring
Failed	Failed	Failed	All four readings are missing	Remote Function Actuator Module Malfunction, below in Circuit/System Testing
Failed	Passed	Passed	All four readings are missing	
Passed	Passed	Failed	All four readings are present	Keyless Entry Antenna Malfunction, below in Circuit/System Testing
Passed	Failed	Passed	All four readings are present	
Passed	Failed	Failed	Unable to power mode vehicle, readings are unknown	
Passed	Failed	Failed	All four readings are present	Keyless Entry Transmitter Malfunction, below in Circuit/System Testing
Failed	Failed	Failed	All four readings are present	
Failed	Passed	Passed	All four readings are present	
Failed	Passed	Failed	All four readings are present	

Circuit/System Testing

Note: The passive entry system unlocking function can be disabled through the transmitter or the center stack. The center stack displays the status of the feature. If the feature is disabled the exterior lights will flash quickly 4 times when the passive entry door button is pressed. Refer to owners manual for more information.

Remote Function Actuator Module Malfunction

1. Ignition OFF and all vehicle systems OFF, scan tool disconnected, disconnect the harness connector at the K77 Remote Function Actuator Module. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 30 Ω between the low reference circuit terminal 4 and ground.

⇒ **If 30 Ω or greater**

  2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

  2.2. Test for less than 2 Ω in the low reference circuit end to end.

  ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

  ⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If less than 30 Ω**

3. Ignition ON.
4. Test for greater than 11.5 V between the B+ circuit terminal 1 and ground.

⇒ **If 11.5 V or less**

  4.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

  4.2. Test for infinite resistance between the B+ circuit and ground.

  ⇒ If less than infinite resistance, repair the short to ground on the circuit.

  ⇓ If Infinite resistance.

  4.3. Test for less than 2 Ω in the B+ circuit end to end.

  ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

  ⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 11.5 V**

5. Test for 0.001–12 V between the serial data circuit terminal 2 and ground.

⇒ **If less than 0.001 V**

  5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

  5.2. Test for infinite resistance between the serial data circuit and ground.

  ⇒ If less than infinite resistance, repair the short to ground on the circuit.

  ⇓ If infinite resistance

  5.3. Test for less than 2 Ω in the serial data circuit end to end.

  ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

  ⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇒ **If greater than 12 V**

  5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

  5.2. Test for less than 0.001 V between the serial data circuit and ground.

  ⇒ If 0.001 V or greater, repair the short to voltage on the circuit.

  ⇒ If less than 0.001 V, replace the K9 Body Control Module.

⇓ **If between 0.001–12 V**

6. Ignition OFF, disconnect the X8 harness connectors at the K9 Body Control Module, ignition ON.
7. Test for less than 0.001 V between the K9 Body Control Module serial data circuit terminal 17 X8 and ground.

⇒ **If 0.001 V or greater**

Repair the short to voltage on the circuit.

⇓ **If less than 0.001 V**

8. Ignition OFF.
9. Test for infinite resistance between the K9 Body Control Module serial data circuit terminal 17 X8 and ground.

⇒ **If less than infinite resistance**

Repair the short to ground on the circuit.

⇓ **If infinite resistance**

10. Test for less than 2 Ω between the K9 Body Control Module serial data circuit terminal 17 X8 and the K77 Remote Function Actuator Module serial data circuit terminal 2.

⇒ **If 2 Ω or greater**

Repair the open/high resistance in the circuit.

⇓ **If less than 2 Ω**

11. Replace the K77 Remote Function Actuator Module.
12. Verify the keyless entry functions operate.

⇒ **If the keyless entry functions do not operate**

Replace the K9 Body Control Module

⇓ **If the keyless entry functions operate**

13. All OK.

Note: The passive entry system unlocking function can be disabled through the transmitter or the center stack. The center stack displays the status of the feature. If the feature is disabled the exterior lights will flash quickly 4 times when the passive entry door button is pressed. Refer to owners manual for more information.

Keyless Entry Antenna Malfunction

1. Verify the scan tool Exterior Driver Door Handle Switch, Exterior Passenger Door Handle Switch, and Trunk Lid Exterior Unlatch Switch parameters change between Active and Inactive while operating their respective exterior door handle/rear closure touch pad.

⇒ **If any of the parameters does not change**

⇓ **If all of the parameters change**

2. All OK.
3. Remove and reinstall the transmitter battery, do not replace the battery. Verify the function .

   Note: Verify the antenna is installed correctly and not damaged.
4. Ignition OFF, disconnect the harness connector at the appropriate T10 Keyless Entry Antenna that is related to the fault condition, ignition ON.
5. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

5.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

5.2. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

6. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
7. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by operating the appropriate exterior door handle/rear closure touch pad.
8. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

8.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

8.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

8.3. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1 V**

9. Test for less than 1 V between the low reference circuit terminal 2 and ground.

⇒ **If 1 V or greater**

9.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

9.2. Test for less than 1 V between the low reference circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

10. Install a DMM between the signal circuit terminal 1 and the low reference circuit terminal 2. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V.
11. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by operating the appropriate exterior door handle/rear closure touch pad.
12. Verify the MAX voltage captured by the DMM is greater than 1 V.

⇒ **If 1 V or less**

12.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

12.2. Test for infinite resistance between the low reference circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

12.3. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If greater than 1V**

13. Replace the appropriate T10 Keyless Entry Antenna.
14. Lock the vehicle doors using the keyless entry transmitter. Activate the antenna by operating the appropriate exterior door handle/rear closure touch pad.
15. Verify that the door/rear compartment unlocks and opens when the exterior door handle/rear closure touch pad is operated.

⇒ **If the door/rear compartment does not unlock and open**

Replace the K9 Body Control Module.

⇓ **If the door/rear compartment unlocks and opens**

16. All OK.

Note: The passive entry system unlocking function can be disabled through the transmitter or the center stack. The center stack displays the status of the feature. If the feature is disabled the exterior lights will flash quickly 4 times when the passive entry door button is pressed. Refer to owners manual for more information.

Keyless Entry Transmitter Malfunction

1. Ignition ON.
2. Verify that DTC B1442, B1444, B1446, B1451, B1511, B1513, or B15EE is not set.

⇒ **If any of the DTCs are set**

Refer to Diagnostic Trouble Code (DTC) List - Vehicle.

⇓ **If none of the DTCs are set**

3. Verify the Tire Pressure Monitoring System is functioning by adding air to one tire to see the air pressure display increase.

⇒ **If the pressure does not increases**

Refer to Symptoms - Tire Pressure Monitoring

⇓ **If the pressure increases**

4. Verify the VIN information for the vehicle transmitter is correct using the*EL-52545* .

⇒ **If the VIN is blank**

Refer to *Remote Control Door Lock and Theft Deterrent Transmitter Programming on page 8-259*.

⇒ **If the VIN is incorrect**

This transmitter is not for this vehicle, it may already be programmed to work with a different vehicle but cannot be programmed to this vehicle.

⇓ **If the VIN is correct**

5. Verify the frequency of the transmitter matches the frequency of the tire pressure monitoring system and the remote control door lock receiver using the *EL-52545* .

⇒ **If the transmitter frequency is incorrect**

Replace the vehicle transmitter.

⇓ **If the transmitter frequency is correct**

6. Verify the part number information for the vehicle transmitter is correct using the *EL-52545* .

⇒ **If the vehicle transmitter part number is incorrect**

Replace the vehicle transmitter.

⇓ **If the vehicle transmitter part number is correct**

7. Verify the transmitter output is above 20% on the*EL-52545* signal strength meter by pressing a button on the transmitter ten times.

⇒ **If the transmitter output is lower than 20%**

Replace the transmitter battery.

Note: Before replacing the transmitter, inspect the transmitter battery contacts for any corrosion or damage. If no corrosion or damage is found, replace the transmitter battery and retest before replacing the transmitter.

⇓ **If the transmitter output is higher than 20%**

8. Using the scan tool read the number of transmitters learned in the K9 Body Control Module. Using the*EL-52545* read the number of transmitters learned in the transmitter.

⇒ **If the transmitters learned is less than the number programmed**

Program the transmitter. Refer to *Remote Control Door Lock and Theft Deterrent Transmitter Programming on page 8-259*.

⇓ **If the transmitters learned is equal to the number programmed**

9. Using the*EL-52545* verify the transmitter is responding to the antenna by placing the transmitter next to the *EL-52545* and pressing the start/stop button. The *EL-52545* should display a high frequency (315 MHz or 433 MHz) reading when the start/stop button is pressed.

⇒ **If the high frequency (315 MHz or 433 MHz) response does not display**

Program the transmitter. Refer to *Remote Control Door Lock and Theft Deterrent Transmitter Programming on page 8-259*.

9.1. Using the*EL-52545* verify the transmitter is responding to the antenna by placing the transmitter next to the*EL-52545* and pressing the start/stop button. The *EL-52545* should display a high frequency (315 MHz or 433 MHz) reading when the start/stop button is pressed.

⇒ If the high frequency (315 MHz or 433 MHz) does not display. Replace the vehicle transmitter

⇓ **If the high frequency (315 MHz or 433 MHz) does display**

10. Verify the scan tool Exterior Driver Door Handle Switch, Exterior Passenger Door Handle Switch, and Power Endgate (if equipped) Exterior Unlatch Switch parameters change between Active and Inactive while operating their respective exterior door handle/rear closure touch pad.

⇒ **If any of the parameters does not change**

⇓ **If all of the parameters change**

11. Lock the vehicle using the keyless entry transmitter.
12. Verify that each door and the rear compartment unlocks and opens by approaching the vehicle with a valid transmitter and operating their respective exterior door handle/rear closure touch pad.

⇒ **If both doors and the rear compartment do not unlock/unlatch and open**

Refer to Remote Function Actuator Module Malfunction in Circuit/System Testing above.

⇒ **If only one door or the rear compartment does not unlock/unlatch and open**

Refer to Keyless Entry Antenna Circuit Malfunction in Circuit/System Testing above.

⇓ **If both doors and the rear compartment unlocks/unlatches and opens**

13. All OK.
14. The concern may be caused by temporary RF interference. Discuss the conditions in which the concern occurs with the customer. RF interference from aftermarket devices such as 2-way radios, power inverters, cellular phone chargers, computers, etc. may cause a system malfunction. High RF traffic areas, such as gas stations which use pay-at-the-pump RF transponders, may also cause interference that could lead to a malfunction.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Remote Control Door Lock and Theft Deterrent Transmitter Programming on page 8-259*
- Control Module References for module replacement, programming, and setup.

Front Side Door Access Control Transmitter Malfunction

Object-ID=6050009 Owner=Day, Colin LMD=18-Oct-2022 LMB=Day, Colin

Circuit/System Description

The Front Side Door Access Control Transmitter is an accessory offered to be used as a vehicle entry device. Similar to the Keyless Entry Transmitter, the Front Side Door Access Control Transmitter will send a radio frequency signal to the Remote Function Actuator. Next, the Remote Function Actuator sends a signal to the Body Control Module via LIN communication. The BCM will interpret this signal and either lock or unlock the vehicle as a result. A low transmitter battery or radio frequency interference from aftermarket devices, such as 2-way radios, power inverters, computers, etc., may cause a system malfunction. High radio frequency traffic areas, such as gas stations that use pay-at-the-pump radio frequency transponders, may also cause interference that could lead to a malfunction.

Reference Information

Schematic Reference

Remote Function Schematics on page 8-220

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Keyless Entry System Description and Operation on page 8-337

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Special Tools

EL-52545 Tire Pressure Monitor Sensor and RF Diagnostic Tool

Circuit/System Verification

In order to determine the best starting point to begin diagnosis first determine which features on the vehicle are functioning correctly or not. By performing a simple and quick check on the vehicle it can be determined if there is or isn’t a fault in each feature. If any one part of the feature is faulty then the feature status is failed.

Match the status of all four features and go the suggested link to begin diagnosis.

Note: The Front Side Door Access Control Transmitter will need to be reprogrammed in the event of BCM replacement. This can only be achieved with the Master Code. If the Master Code is not retrievable, a new Front

Side Door Access Control Transmitter with accompanying wallet card will need to be programmed to the new BCM.

Active Keyless Entry Verification

1. Ignition off, stand approximately 10 meters (33 feet) from the vehicle.
2. Verify that no other DTCs are set, as they could be the root cause of the issue.

⇒ **If any of the DTCs are set**

Refer to Diagnostic Trouble Code (DTC) List - Vehicle.

⇓ **If none of the DTCs are set**

3. Verify the keyless entry transmitter locks and unlocks the vehicle.

⇒ **If the vehicle either does not lock or does not unlock**

Refer to *Keyless Entry System Malfunction on page 8-249*.

⇓ **If the vehicle locks and unlocks**

4. Verify the Front Side Door Access Control Transmitter locks and unlocks the vehicle.

⇓ **If the vehicle either does not lock or does not unlock**

Refer to circuit system testing below.

⇓ **If the vehicle locks and unlocks**

5. All OK.

Keyless Entry Transmitter Status	Front Side Door Access Control Transmitter Status	Most Probable Diagnostic Starting Point
Passed	Passed	—
Passed	Failed	Front Side Door Access Control Transmitter
Failed	Passed	Keyless Entry Transmitter
Failed	Failed	Remote Function Actuator

Problem	Possible Cause	Solution
Keypad not programming via TIS2WEB	Wrong keypad part number is being used/installed	Verify correct part number
Keypad not programming via TIS2WEB	Decoded QR code (.csv file) received from TCSC not placed in 'USERS' file on technician computer	Place .csv file in USERS file per installation instructions. If placed correctly, TIS2WEB should initiate 10-minute program countdown when file is selected
When prompted by TIS2WEB that the keypad programming was Successful (post 10-minute program countdown), vehicle doors will not unlock with Master code	Wrong Master code entered Master code was entered too slowly	Confirm Master code on User/Wallet card (see sample user/wallet card below) included with every keypad kit Each Master code digit must be entered within 5 seconds of each other
Prompted by TIS2WEB that the keypad programming was Unsuccessful (post 10-minute program countdown)	Programming was unsuccessful	Repeat programming procedures via TIS2WEB
Kit does not contain User/Wallet card – QR code and Master code are unknown	User/Wallet card may be tucked in other paperwork contained in the kit	If original User/Wallet card cannot be located (see sample user/wallet card below) - QR code and Master code are NOT retrievable and keypad will need to be replaced with a new kit
Vehicle doors will not unlock with Master code or Personal code	Battery may be low or "bad" One or more keypad buttons may not be functioning/transmitting Wrong Master code or Personal code was entered	Test keypad battery by locking vehicle doors – Simultaneously press the 7/8 and 9/0 buttons – if the battery is "good", the vehicle doors will lock Press each keypad button and confirm the keypad LED or number backlighting illuminates with each button press Retrieve Master code from original user/wallet card (see sample user/wallet card below)
Master code and/or Personal code are unknown	User/Wallet card may be tucked in vehicle glove box, center console or vehicle owner's manual	If original User/Wallet card cannot be located (see sample user/wallet card below) or Master code is NOT retrievable - Keypad will need to be replaced with a new kit
Master code and/or Personal code are entered and driver's door unlocks, locks and unlocks again	LOW POWER WARNING – Keypad battery life (3 uses/day for 10 years) has exceeded lifetime expectancy	Keypad is weather-sealed for quality assurance and the battery cannot be replaced – Keypad will need to be replaced with a new kit
Vehicle doors will not unlock with the Personal code	Wrong Personal code was entered, Personal code was lost or entered incorrectly when initially programmed	If Personal code is unknown, Master code on user/wallet card will ALWAYS operate the keypad and can be used to program a new Personal code

Circuit/System Testing

1. Ignition ON.
2. Using the master code, verify the Front Side Door Access Control Transmitter is functioning by unlocking the vehicle.

⇒ **If the Front Side Door Access Control Transmitter LED light does not illuminate and the vehicle does not unlock**

Replace the Front Side Door Access Control Transmitter.

⇓ **If the Front Side Door Access Control Transmitter LED light does illuminate and the vehicle does not unlock**

3. Verify the Front Side Door Access Control Transmitter is the correct part number and frequency for the vehicle.

⇒ **If the part number or frequency is incorrect for the vehicle**

Replace the Front Side Door Access Control Transmitter.

⇒ **If the part number and frequency are both correct**

4. Use the *EL-52545* to verify the Front Side Door Access Control Transmitter is emitting a signal strength of 20% or greater.

⇒ **If the Front Side Door Access Control Transmitter does not emit a signal of 20% or greater**

Replace the Front Side Door Access Control Transmitter.

⇓ **If the Front Side Door Access Control Transmitter does emit a signal of 20% or greater**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Note: Installation procedures can be found in the Accessory Installation Manual in the Electrical Accessories section.

Keyless Entry Transmitter Pocket Location

Object-ID=6000693 Owner=Day, Colin LMD=03-Apr-2023 LMB=Day, Colin

Note: For exact Transmitter Pocket Location with corresponding graphics, refer to the following documents in the Owner's Manual: Keys, Doors, and Windows —> Keys and Locks —> Remote Keyless Entry (RKE) System Operation (or Specific Cylinder Unit for Single Key - Random Code System for Police and Municipality Vehicles).

Keyless Entry Transmitter Pocket Location

Model Year	Make	Model	Transmitter Pocket Location
2017–2019	GMC	Acadia	Center console storage area
2020–present	GMC	Acadia	Center console beneath liner
2013–2019	Cadillac	ATS	Center console storage area
2019–present	Chevrolet	Blazer	Forward cupholder
2024–present	Chevrolet	Blazer EV	Rearward cupholder
2018–present	Chevrolet	Bolt EUV	Center console beneath storage tray
2017–present	Chevrolet	Bolt EV	Center console beneath storage tray
2016–present	Chevrolet	Camaro	Rearward cupholder
2023–present	GMC	Canyon	Right Cupholder
2019–2022	Chevrolet	Cheyenne LTD	For Bench Seat: Inside middle lower compartment. For Bucket Seat: Pocket between front cupholders
2022–present	Chevrolet	Cheyenne New Model	For Bucket Seat: Rearward pocket between shift lever and cupholder For Bench Seat: Inside middle seat storage compartment For Special Service Vehicles: Above Stop/Start button
2023–present	Chevrolet	Colorado	Right cupholder
2005–2013	Chevrolet	Corvette	Glove box
2014–2019	Chevrolet	Corvette	Steering column
2020–present	Chevrolet	Corvette	Forward cupholder
2009–2016	Chevrolet	Cruze	Storage area next to accessory power outlet
2016–present	Chevrolet	Cruze (Gen II)	Automatic Transmisstion: Forward cupholder Manual Transmission: Rearward cupholder
2020–present	Cadillac	CT4	Automatic Transmission: Rearward cupholder Manual Transmission: Rearward cupholder
2020–present	Cadillac	CT5	Automatic Transmission: Rearward cupholder Manual Transmission: Rearward cupholder
2016–present	Cadillac	CT6	Center console storage area
2010–2019	Cadillac	CTS	Center console storage area
2014, 2016	Cadillac	ELR	Center console storage area, buttons facing down
2018–present	Buick	Enclave	Center console beneath liner

Keyless Entry Transmitter Pocket Location (cont'd)

2017–present	Buick	Encore	Forward cupholder
2020–present	Buick	Encore GX	Rearward center console pocket
2016–2020	Buick	Envision	Forward cupholder
2021–present	Buick	Envision	Center console
2018–present	Chevrolet	Equinox	Forward cupholder
2015–2020	Cadillac	Escalade/Escalade ESV	Center console storage area
2021–present	Cadillac	Escalade/Escalade ESV	Forward cupholder
2022	BrightDrop	EV600	Storage compartment above and behind infotainment display
2022–present	GMC	Hummer EV	Rearward cupholder
2014–2020	Chevrolet	Impala	Center console storage area
2010–2019	Buick	LaCrosse	Center console storage area
2023–present	Cadillac	Lyriq	Rearward cupholder, buttons facing down
2013–2016	Chevrolet	Malibu	Rear of center console
2017–present	Chevrolet	Malibu	Rear of center console, buttons facing rear of car
2021–present	Chevrolet	Onix	Rearward cupholder
2024–present	Cruise	Origin	Rear left of center console
2012–2017	Buick	Regal	Forward cupholder
2018–2020	Buick	Regal	Storage bin with lock icon, forward of shift lever
2019–2022	GMC	Sierra 1500 LTD	For Bench Seat: Inside middle seat lower compartment For Bucket Seat: Pocket between front cupholders
2022–present	GMC	Sierra 1500 New Model	For Bucket Seat: Rearward pocket between shift lever and cupholder For Bench Seat: Inside middle seat storage compartment
2020–2023	GMC	Sierra 2500HD/3500HD	For Bench Seat: Inside middle seat lower compartment For Bucket Seat: Pocket between front cupholders
2024–present	GMC	Sierra 2500HD/3500HD	For Bucket Seat: Left cupholder For Bench Seat: Inside middle seat storage compartment
2024–present	Chevrolet	Silverado EV	Left cupholder
2019–2022	Chevrolet	Silverado 1500 LTD	For Bench Seat: Inside middle seat lower compartment For Bucket Seat: Pocket between front cupholders
2022–present	Chevrolet	Silverado 1500 New Model	For Bucket Seat: Rearward pocket between shift lever and cupholder For Bench Seat: Inside middle seat storage compartment For Special Service Vehicles: Above Stop/Start button
2020–2023	Chevrolet	Silverado 2500HD/3500HD	For Bench Seat: Inside middle seat lower compartment For Bucket Seat: Pocket between front cupholders
2024–present	Chevrolet	Silverado 2500HD/3500HD	For Bucket Seat: Left cupholder For Bench Seat: Inside middle seat storage compartment

Keyless Entry Transmitter Pocket Location (cont'd)

2017–2020	Chevrolet	Sonic	Forward Cupholder
2020–present	Chevrolet	Spark	Center console next to parking brake lever, buttons facing front of vehicle
2010–2016	Cadillac	SRX	Center console storage area, beneath storage tray
2005–2011	Cadillac	STS	Center console storage area
2015–2020	Chevrolet	Suburban/Tahoe	Center console storage area
2021–present	Chevrolet	Suburban/Tahoe	For Bench Seat: Inside middle seat lower compartment For Bucket Seat: Left cupholder For Special Service Vehicles (5W4 or 9C1): Above Stop/Start button
2018–present	GMC	Terrain	Left cupholder
2020–present	Chevrolet	Trailblazer	Center console rearward pocket
2018–present	Chevrolet	Traverse	Center console beneath liner
2017–2022	Chevrolet	Trax	Forward cupholder
2012–2017	Buick	Verano	Forward cupholder
2011–2015	Chevrolet	Volt	Instrument panel storage compartment
2016–2019	Chevrolet	Volt	Center console storage area
2007–2009	Cadillac	XLR	Glove box
2019–present	Cadillac	XT4	Forward cupholder
2017–present	Cadillac	XT5	Center console storage area beneath storage tray
2020–present	Cadillac	XT6	Center console storage area beneath storage tray
2013–2019	Cadillac	XTS	Center console storage area
2015–2020	GMC	Yukon/Yukon XL	Center console storage area
2021–present	GMC	Yukon/Yukon XL	For Bench Seat: Inside middle seat lower compartment For Bucket Seat: Left cupholder
2024–present	BrightDrop	Zevo 400	Storage compartment above and behind infotainment display
2023–present	BrightDrop	Zevo 600	Storage compartment above and behind infotainment display

Repair Instructions

Remote Control Door Lock and Theft Deterrent Transmitter Programming

Object-ID=5905422 Owner=Day, Colin LMD=10-Feb-2022 LMB=Day, Colin

Programming Transmitters

Transmitters can be programmed in various ways using the procedures outlined below. Using the Replacing Transmitters procedures will first erase all the known transmitters from the vehicle. Any existing transmitters and any new transmitters will then be programmed. This procedure should be used any time a transmitter is required to be unlearned or erased from a vehicle. If a new transmitter is being learned to a vehicle to replace a damaged, inoperative, or stolen transmitter, the Replacing Transmitters procedure must be used. This ensures that the old transmitter cannot be used to access or start the vehicle after programming.

The Adding Transmitters procedure does not erase any transmitters prior to programming. The procedure will simply program the transmitter into the next available slot. The Adding Transmitters procedure should only be used when adding an additional transmitter to the vehicle. The Adding Keys procedure should never be used to program a transmitter to a vehicle that is having a transmitter replaced, regardless of the cause for the replacement.

Replacing Transmitters (With SPS)

Note:

- To prevent errors or immobilizer learn failure, the vehicle must be in Park (for automatic transmission) or Neutral with park brake applied (for manual transmission).
- This procedure will unlearn all previously learned transmitters. All transmitters that are to be programmed must be with the vehicle.
- A minimum of two transmitters must be learned during this procedure. The vehicle will not exit the learn mode until at least a second transmitter is learned.
- This procedure may be used with or without existing learned transmitters being present.
- This procedure will take more than 15 minutes to complete.
- A total of eight transmitters can be learned to a single vehicle.
- This procedure will only learn the vehicle transmitter information. This procedure will not learn any immobilizer information between the body control module (BCM) and engine control module (ECM).
- If the battery voltage is low, charge the battery before continuing with the procedure.

1. Connect a scan tool to the vehicle and access SPS.
2. Ensure that all power consuming devices are turned OFF on the vehicle.
3. Select the SPS application and follow the on-screen instructions.
4. Select Reprogram ECU.
5. Select IMMO Immobilizer Learn - Setup.
6. Select the Program Transponder or Remote Key (Delete) function.

   Note:

   - At multiple times during the learn procedure, SPS will instruct you to turn the ignition to the run position. Make sure the vehicle is actually in the run mode before continuing on the SPS terminal. If the igniting is not in the run mode, the learn procedure will fail. To verify the vehicle is in Run mode, verify the green LED is illuminated on the ignition mode switch.
   - For the transmitter pocket location refer to the Remote Keyless Entry (RKE) System Operation document in the owner manual.
7. Follow the on-screen instructions.
8. After programming all transmitters, Programming Complete, is displayed.
9. Press and hold the ignition mode switch for 15 seconds.
10. Press the lock and unlock button on each transmitter that was programmed. This will awaken each transmitter and allow passive and active keyless entry functions to be established.
11. With a scan tool, clear any DTCs.
12. Verify each transmitter that was programmed is operating properly. Operate each of the keyless entry functions using the buttons on the transmitter and then start the vehicle. When verifying operation, make sure that no other transmitters are near the vehicle.

Adding Transmitters (With SPS)

Note:

- To prevent errors or immobilizer learn failure, the vehicle must be in Park (for automatic transmission) or Neutral with park brake applied (for manual transmission).
- This procedure may be used with or without existing learned transmitters being present.
- This procedure will take more than 15 minutes to complete.
- A total of eight transmitters can be learned to a single vehicle.
- This procedure will only learn the vehicle transmitter information. This procedure will not learn any immobilizer information between the body control module (BCM) and engine control module (ECM).
- If the battery voltage is low, charge the battery before continuing with the procedure.

1. Connect a scan tool to the vehicle and access SPS.
2. Ensure that all power consuming devices are turned OFF on the vehicle.
3. Select the SPS application and follow the on-screen instructions.
4. Select Reprogram ECU.
5. Select IMMO Immobilizer Learn - Setup.
6. Select the Program Transponder or Remote Key (Add) function.

   Note:

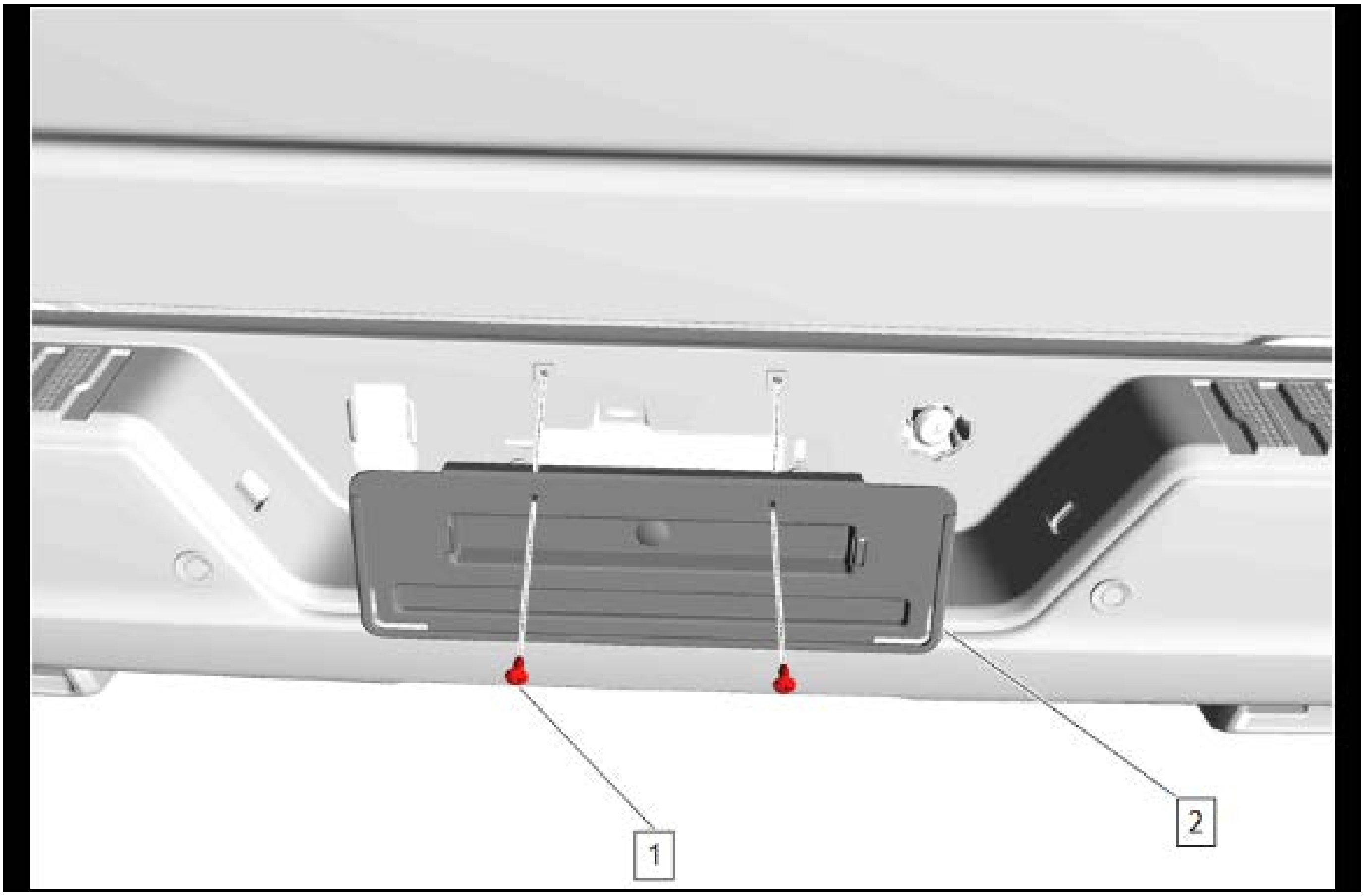
   - At multiple times during the learn procedure, SPS will instruct you to turn the ignition to the run position. Make sure the vehicle is actually in the run mode before continuing on the SPS terminal. If the igniting is not in the run mode, the learn procedure will fail. To verify the vehicle is in Run mode, verify the green LED is illuminated on the ignition mode switch.
   - For the transmitter pocket location refer to the Remote Keyless Entry (RKE) System Operation document in the owner manual.
7. Follow the on-screen instructions.
8. After programming all transmitters, Programming Complete, is displayed.
9. Press and hold the ignition mode switch for 15 seconds.
10. Press the lock and unlock button on each transmitter that was programmed. This will awaken each transmitter and allow passive and active keyless entry functions to be established.
11. With a scan tool, clear any DTCs.
12. Verify each transmitter that was programmed is operating properly. Operate each of the keyless entry functions using the buttons on the transmitter

and then start the vehicle. When verifying operation, make sure that no other transmitters are near the vehicle.

Ignition Lock Key Transmitter Antenna Bracket Replacement

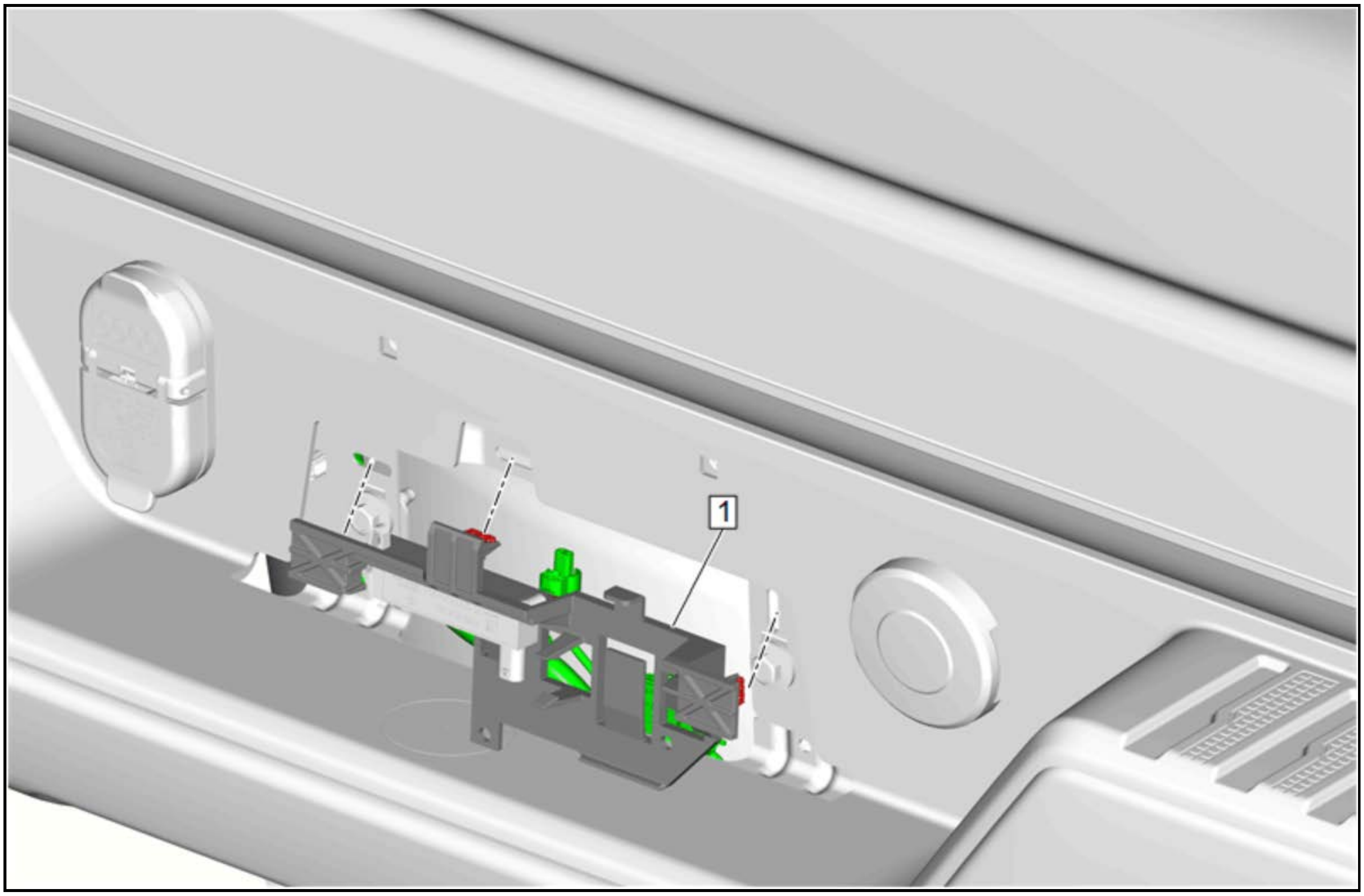
Object-ID=5649106 Owner=Kowalski, Kamil LMD=09-Sep-2021 LMB=Kowalski, Kamil

Removal Procedure



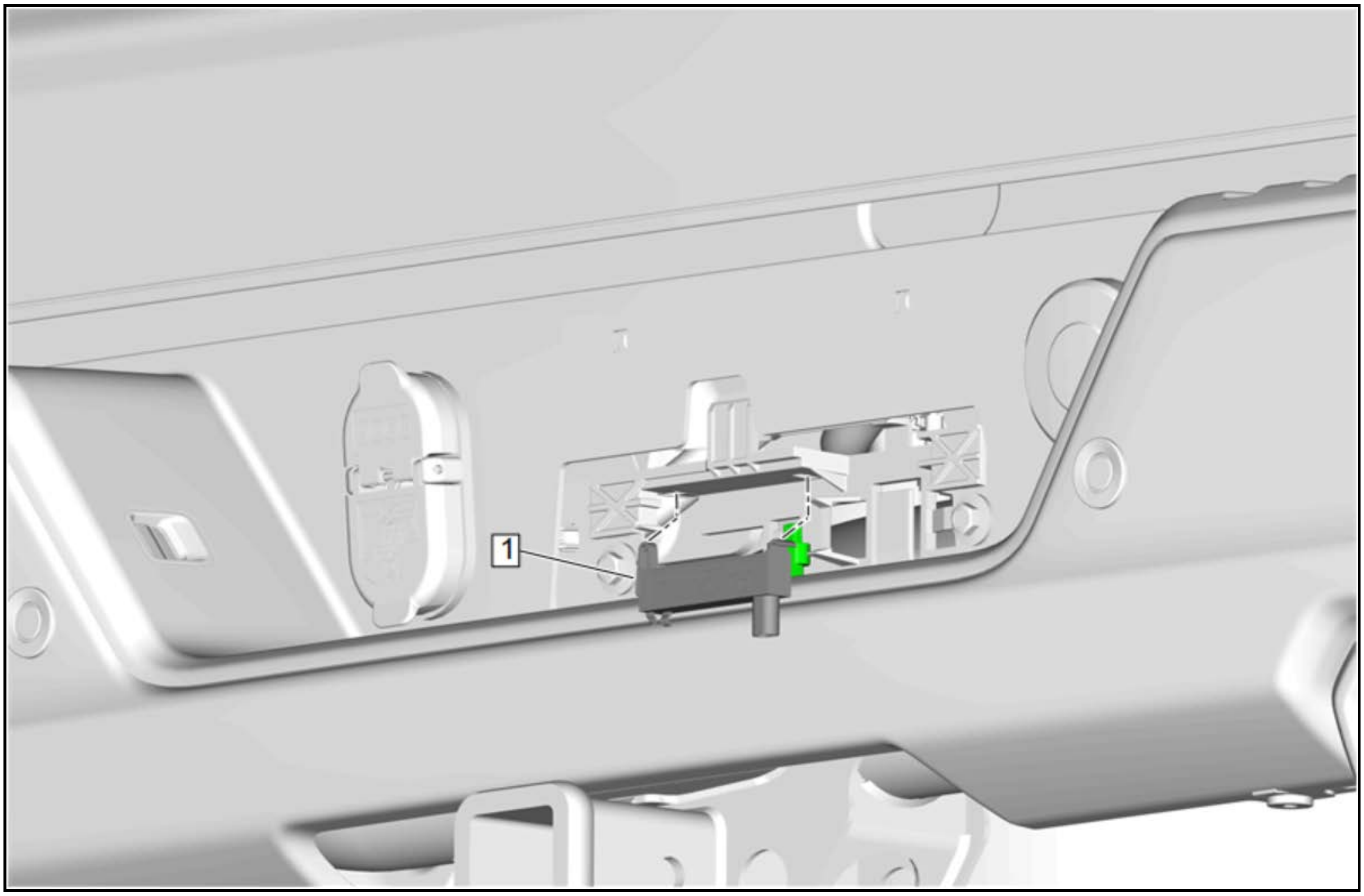
5635683

1. Rear License Plate Bolt (1) » Remove [2x]
2. License Plate (2) » Remove



5038832

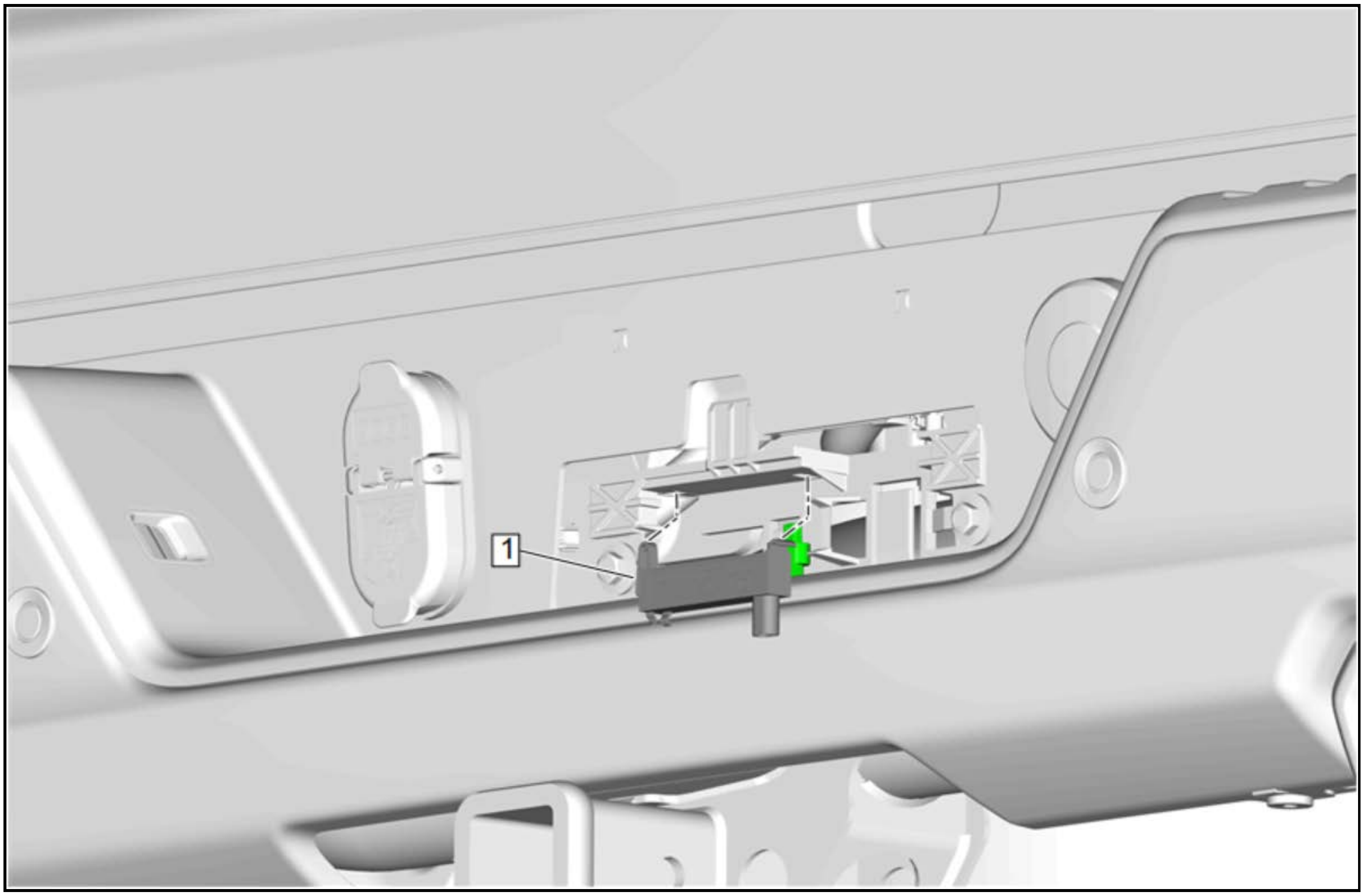
3. Disconnect the electrical connectors.
4. Using a flat-bladed plastic trim tool, release the retaining clips.
5. Ignition Lock Key Transmitter Antenna Bracket (1)
   » Remove



5038785

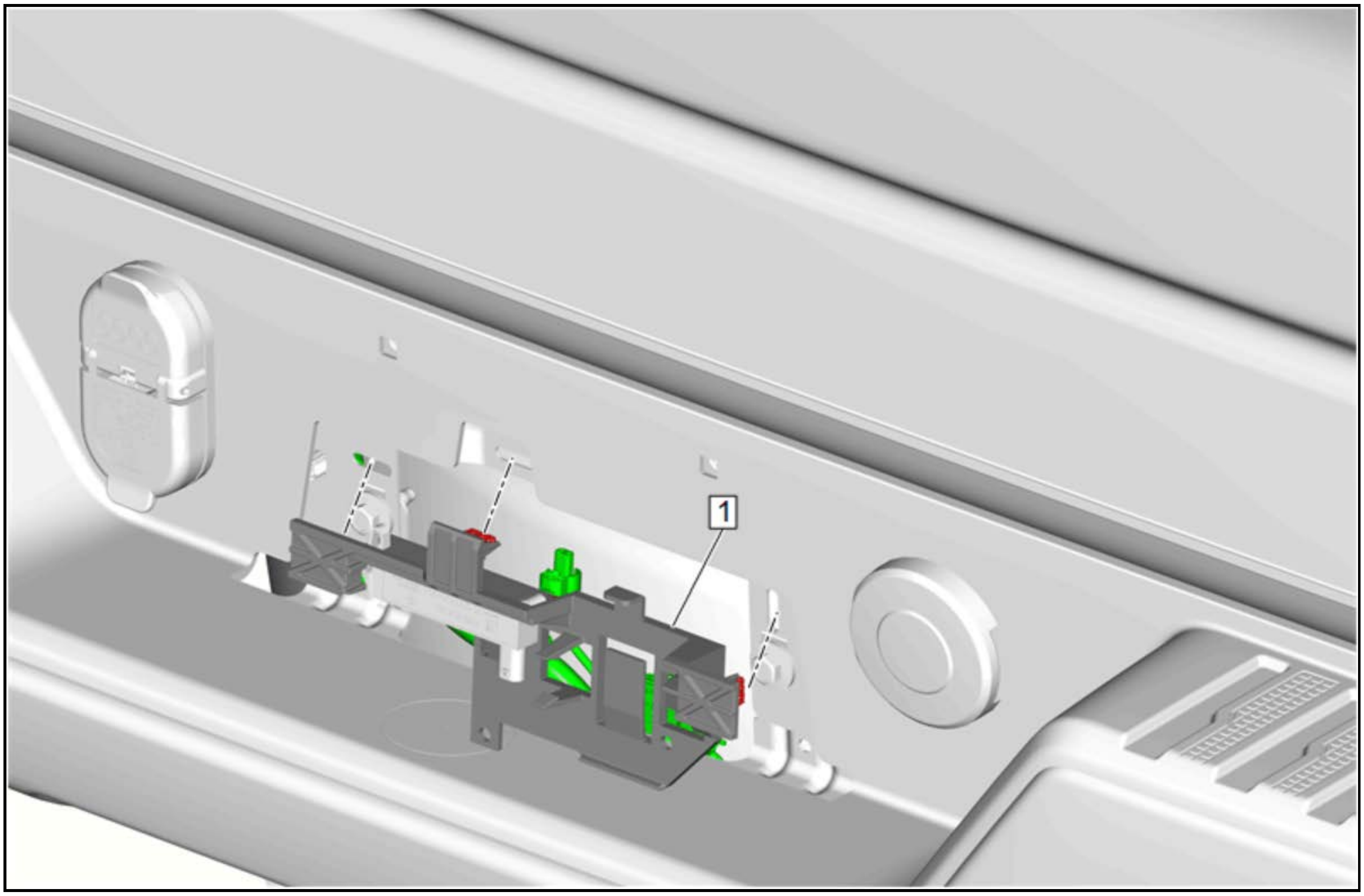
6. Release the retaining tab.
7. Low Frequency Rear Bumper Antenna (1) » Remove

Installation Procedure

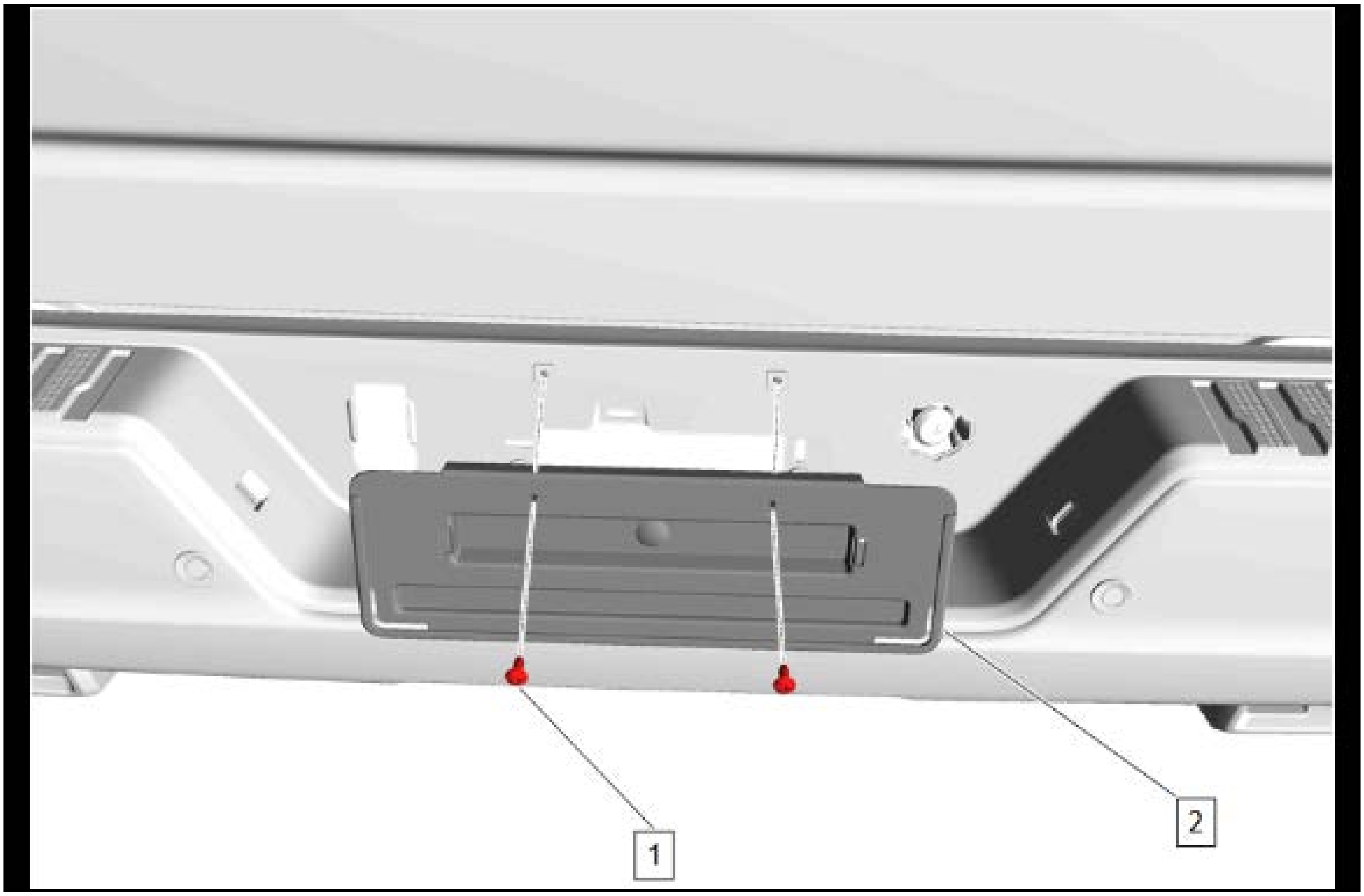


5038785

1. Low Frequency Rear Bumper Antenna (1) » Install
2. Secure the retaining tab.



3. Connect the electrical connectors.
4. Ignition Lock Key Transmitter Antenna Bracket (1)
   » Install
5. Secure the retaining tabs.



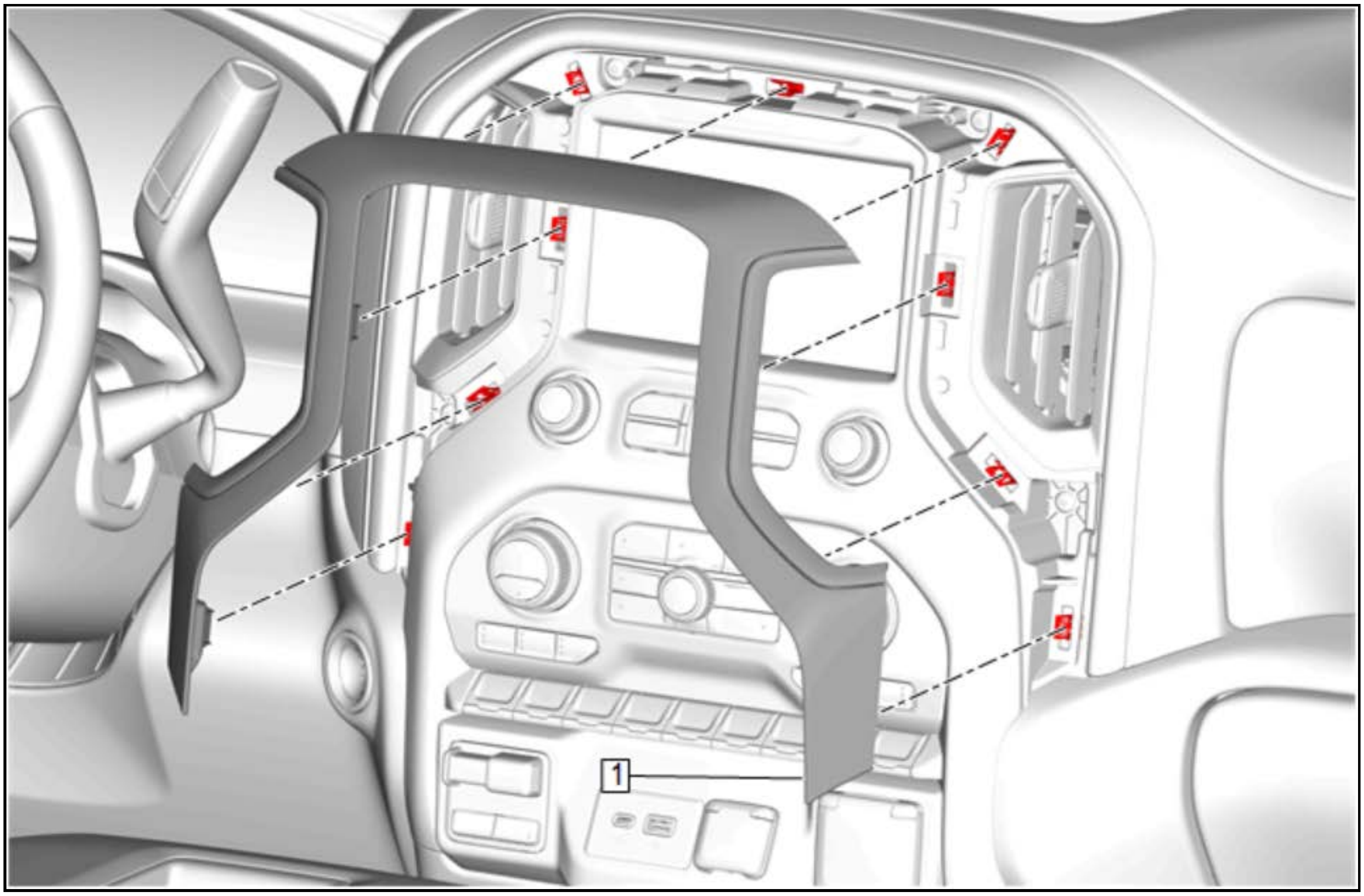
5635683

6. License Plate (2) » Install
7. Rear License Plate Bolt (1) » Install and tighten [2x]

Low Frequency Instrument Panel Antenna Replacement

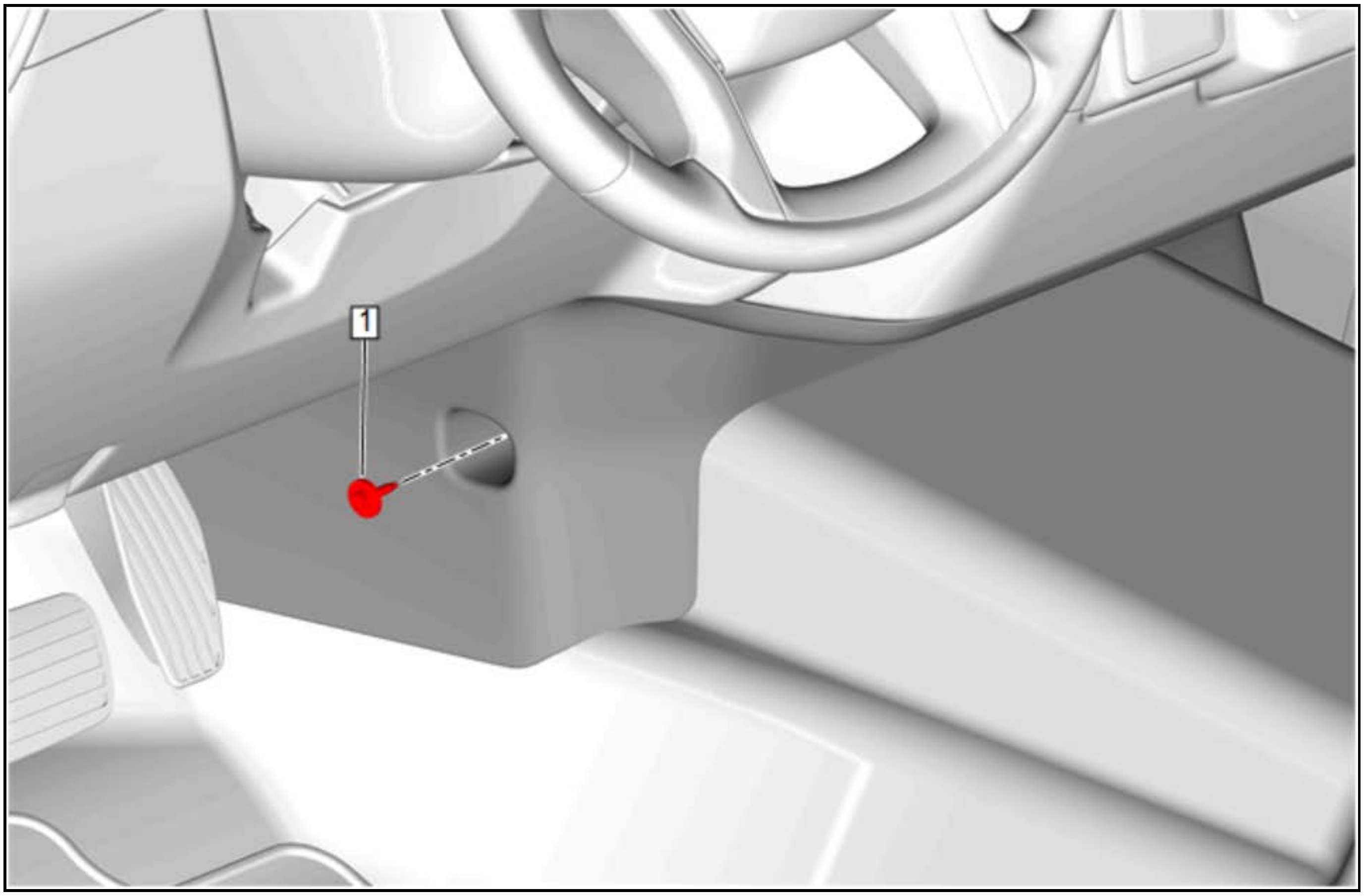
Object-ID=5635546 Owner=Momber, Matthew LMD=08-Sep-2020 LMB=McMillan, Tim

Removal Procedure

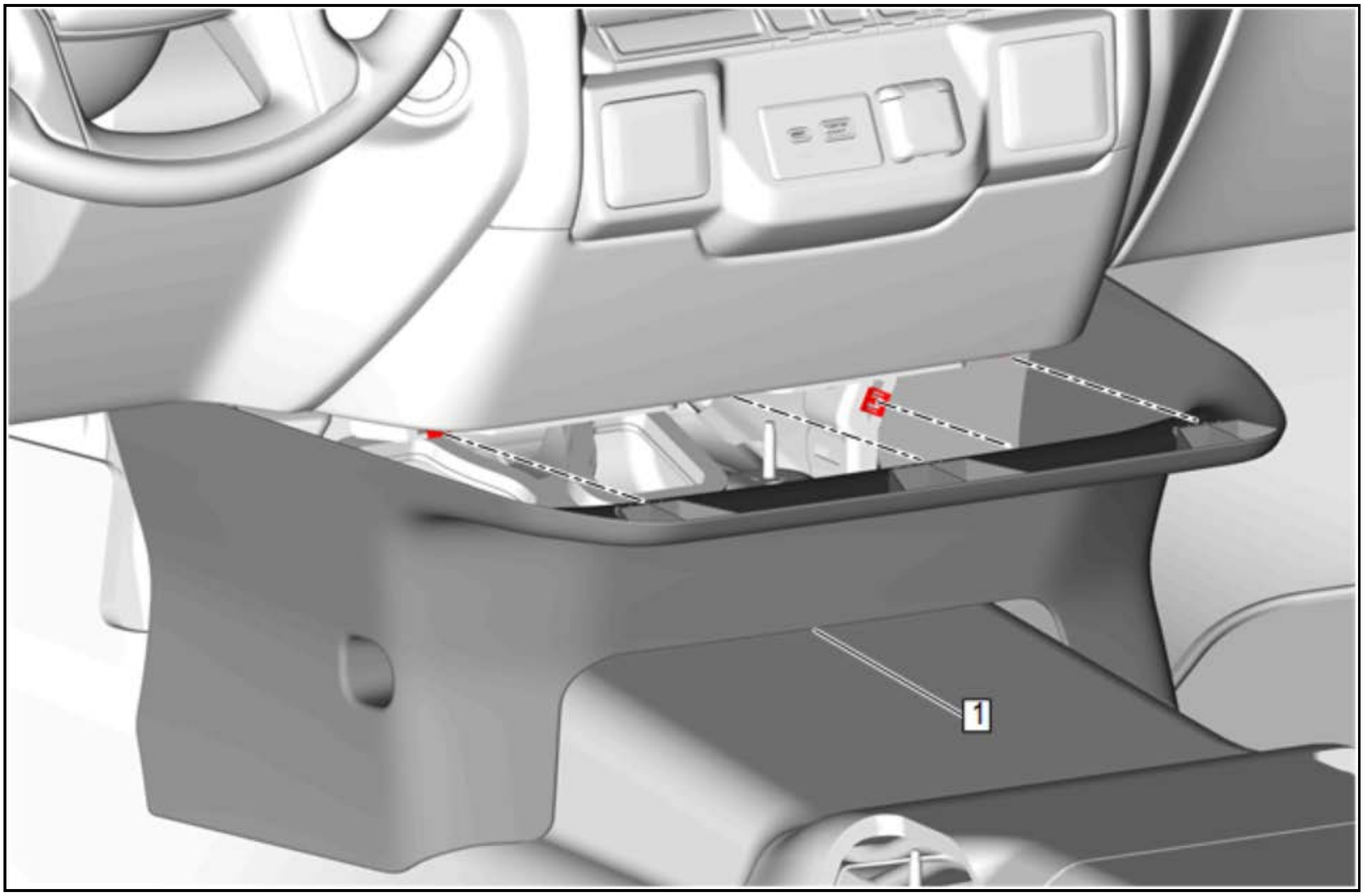


5002228

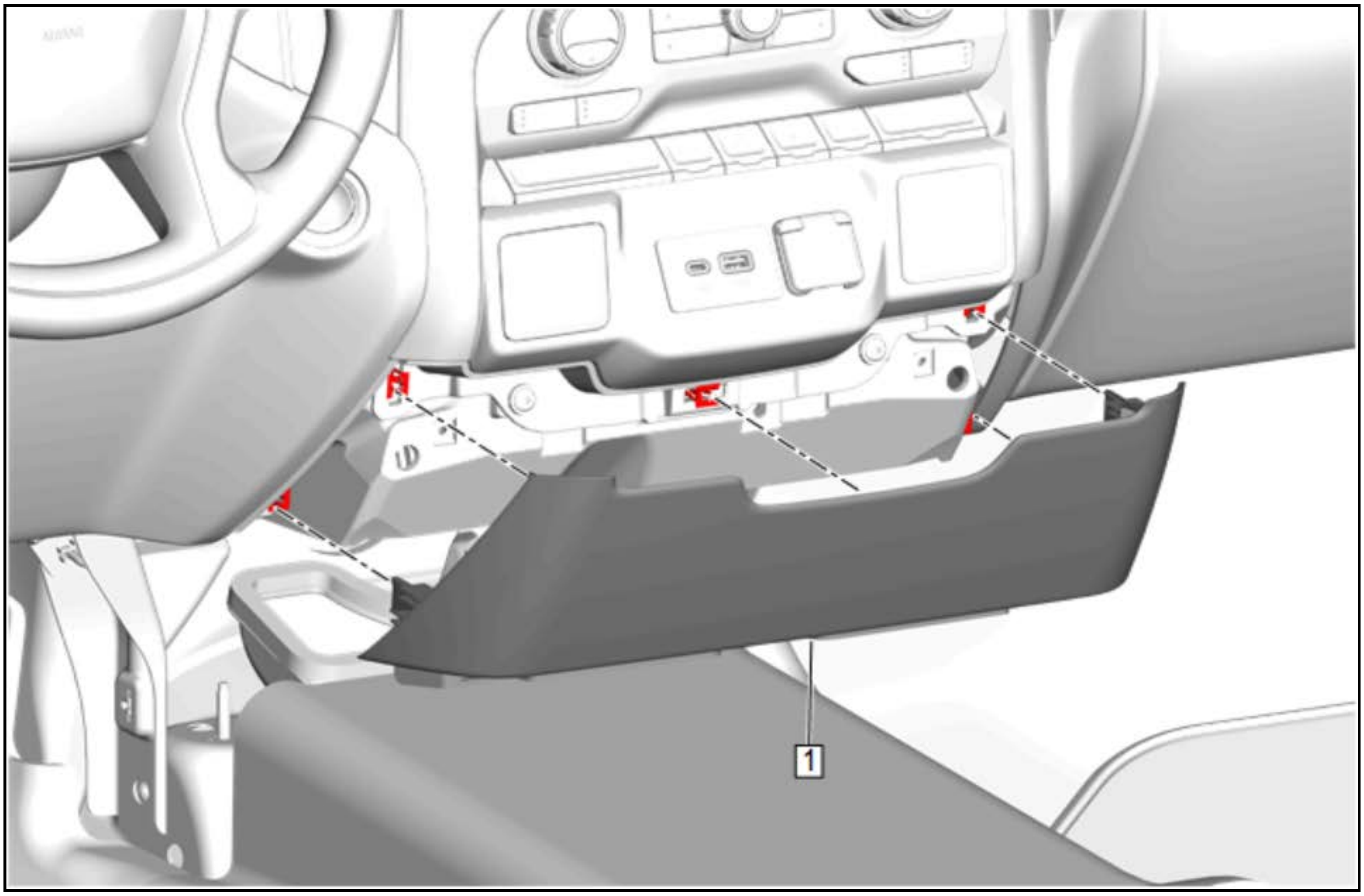
1. Using a flat-bladed plastic trim tool, release the retaining clips.
2. Instrument Panel Trim Plate (1) » Remove



3. Instrument Panel Lower Trim Panel Bolt (1) »
   Remove

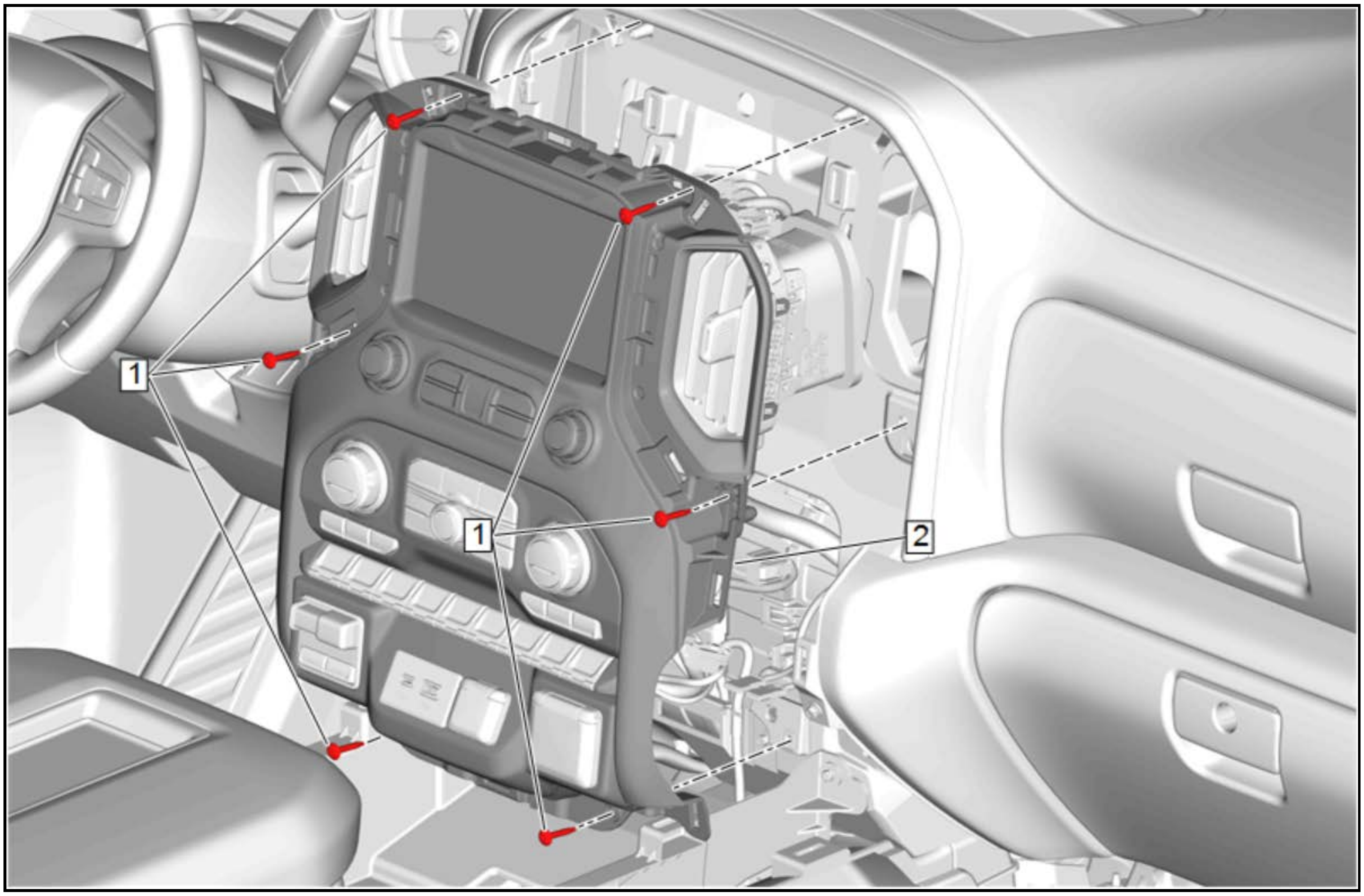


4. Instrument Panel Lower Center Trim Panel (1) »
   Remove

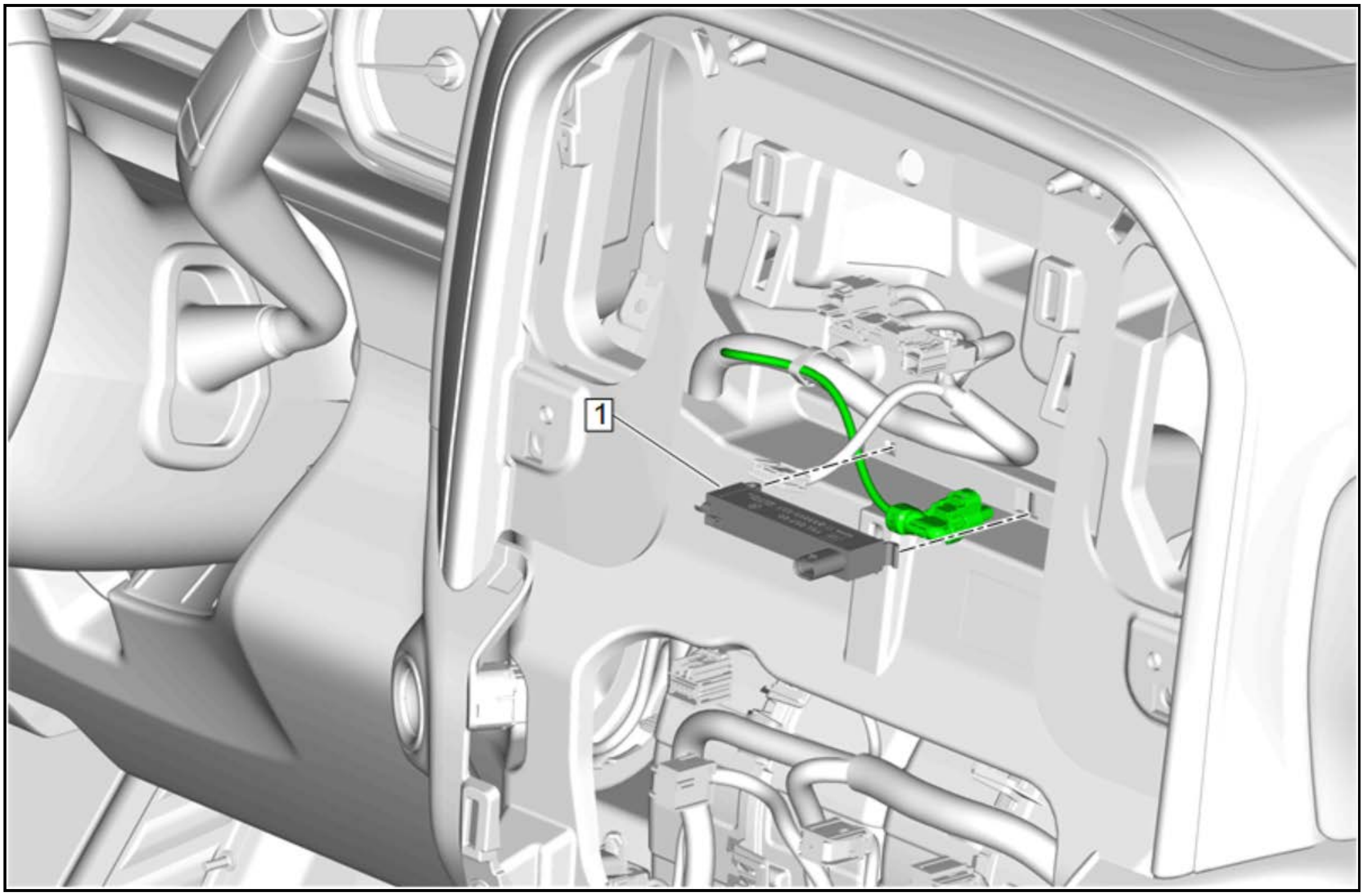


5022878

5. Using a flat-bladed plastic trim tool, release the retaining clips.
6. Instrument Panel Lower Trim Panel (1) » Remove

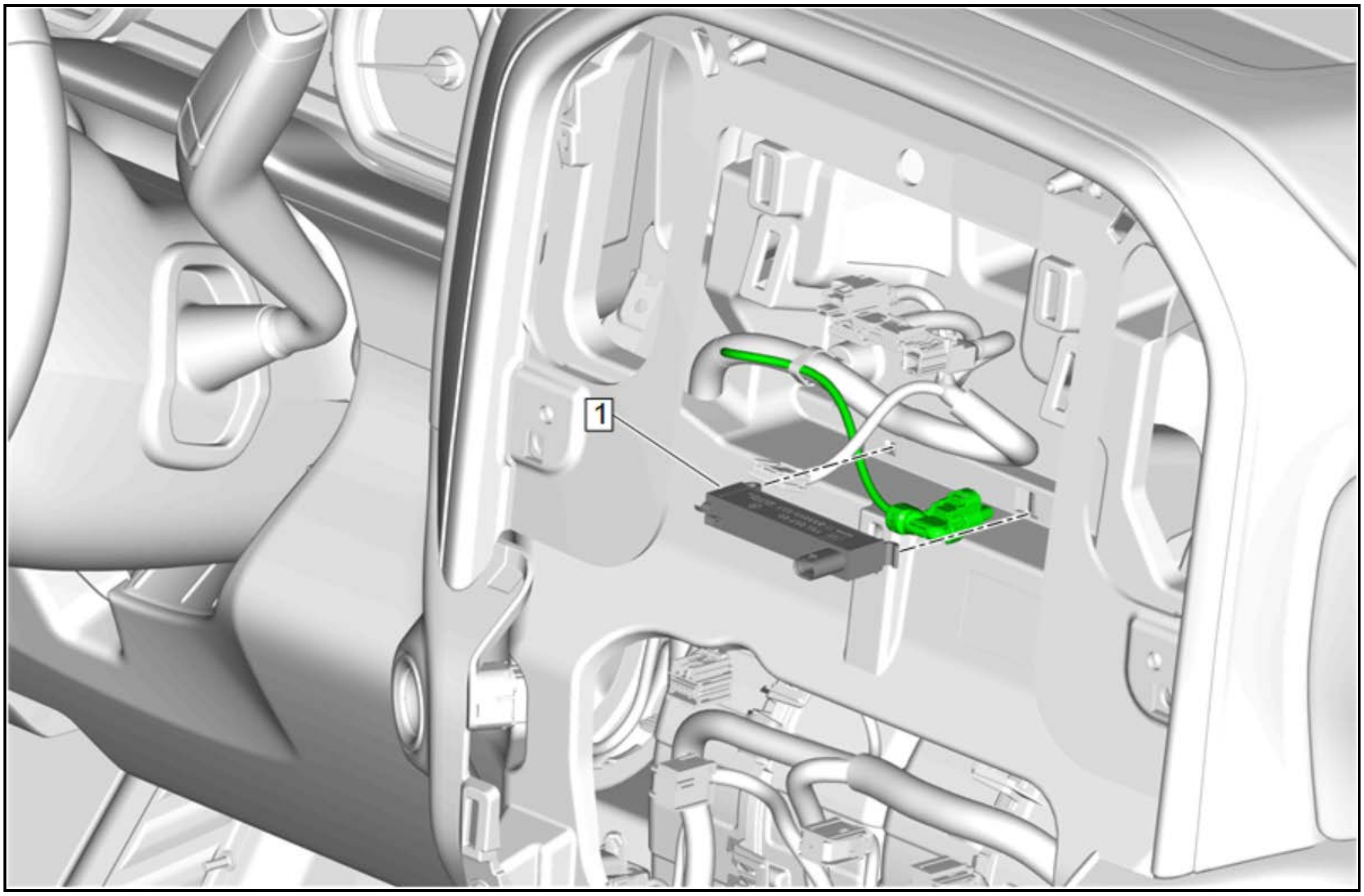


7. Radio Control Bolt (1) » Remove [6x]
8. Disconnect the electrical connectors.
9. Radio Control (2) » Remove

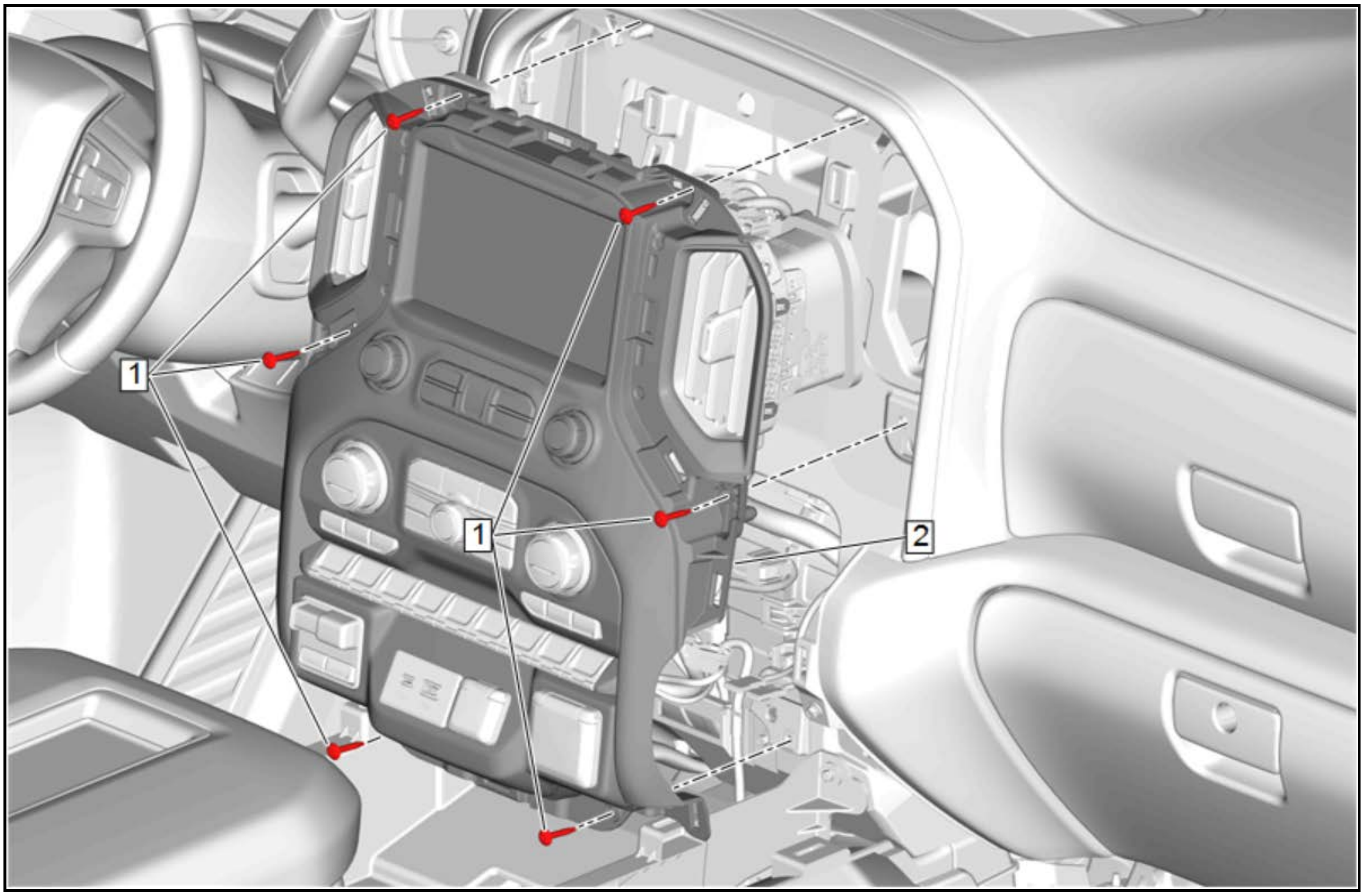


10. Disconnect the electrical connector.
11. Release the retaining tab.
12. Low Frequency Instrument Panel Antenna (1) » Remove

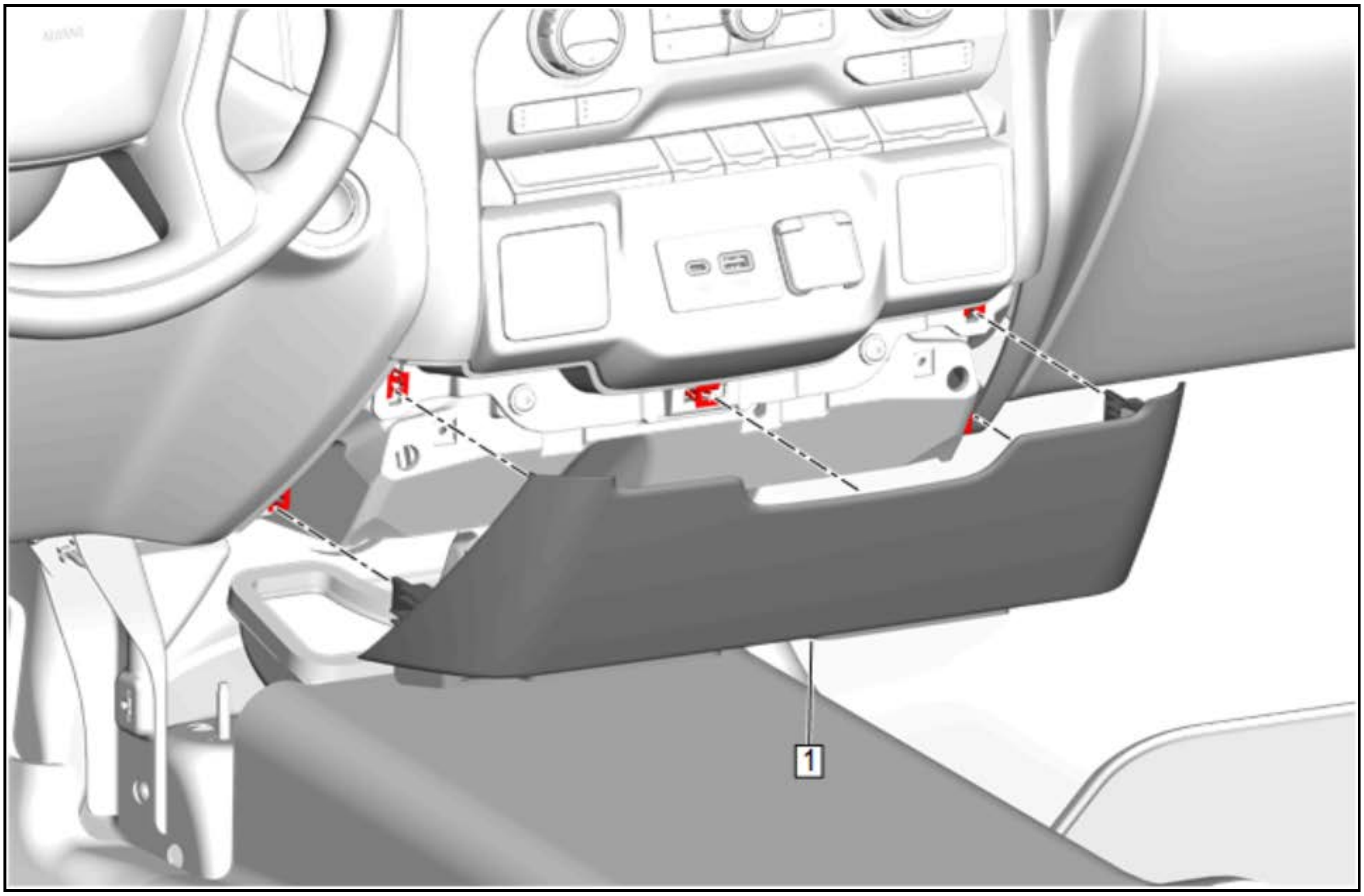
Installation Procedure



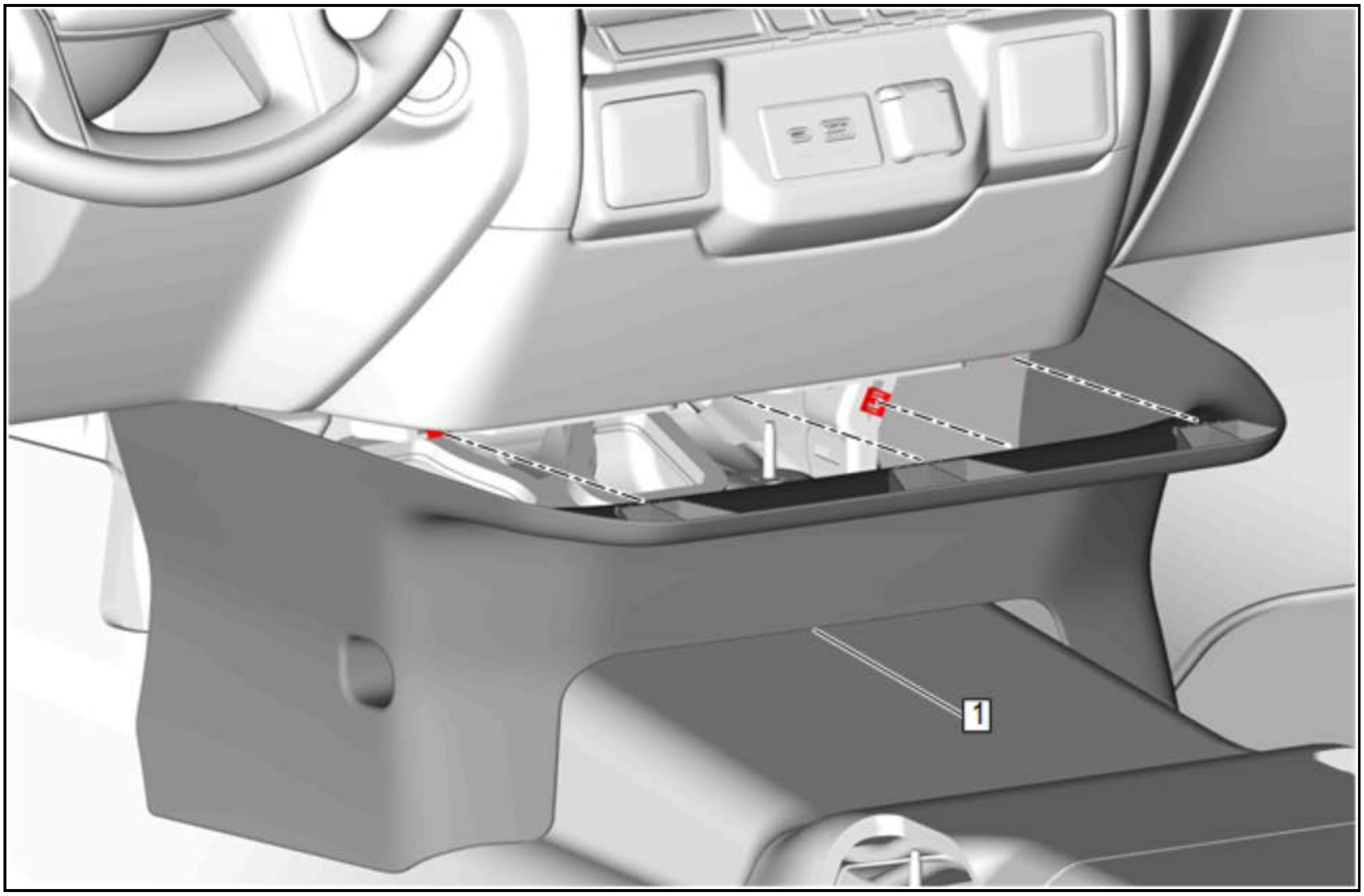
1. Connect the electrical connector.
2. Low Frequency Instrument Panel Antenna (1) » Install
3. Secure the retaining tab.



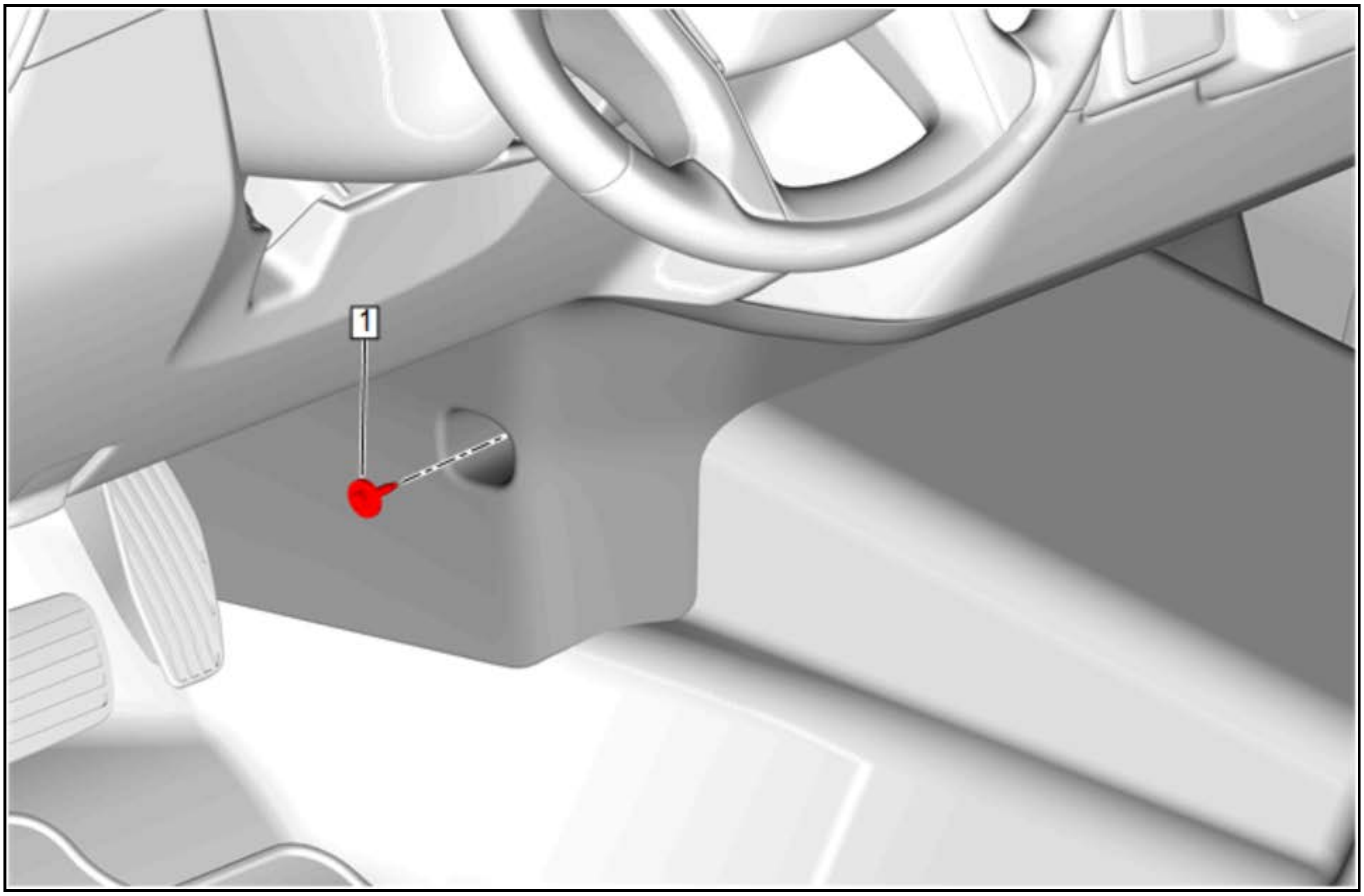
4. Connect the electrical connectors.
5. Radio Control (2) » Install
6. Radio Control Bolt (1) » Install and tighten [6x]



7. Instrument Panel Lower Trim Panel (1) » Install

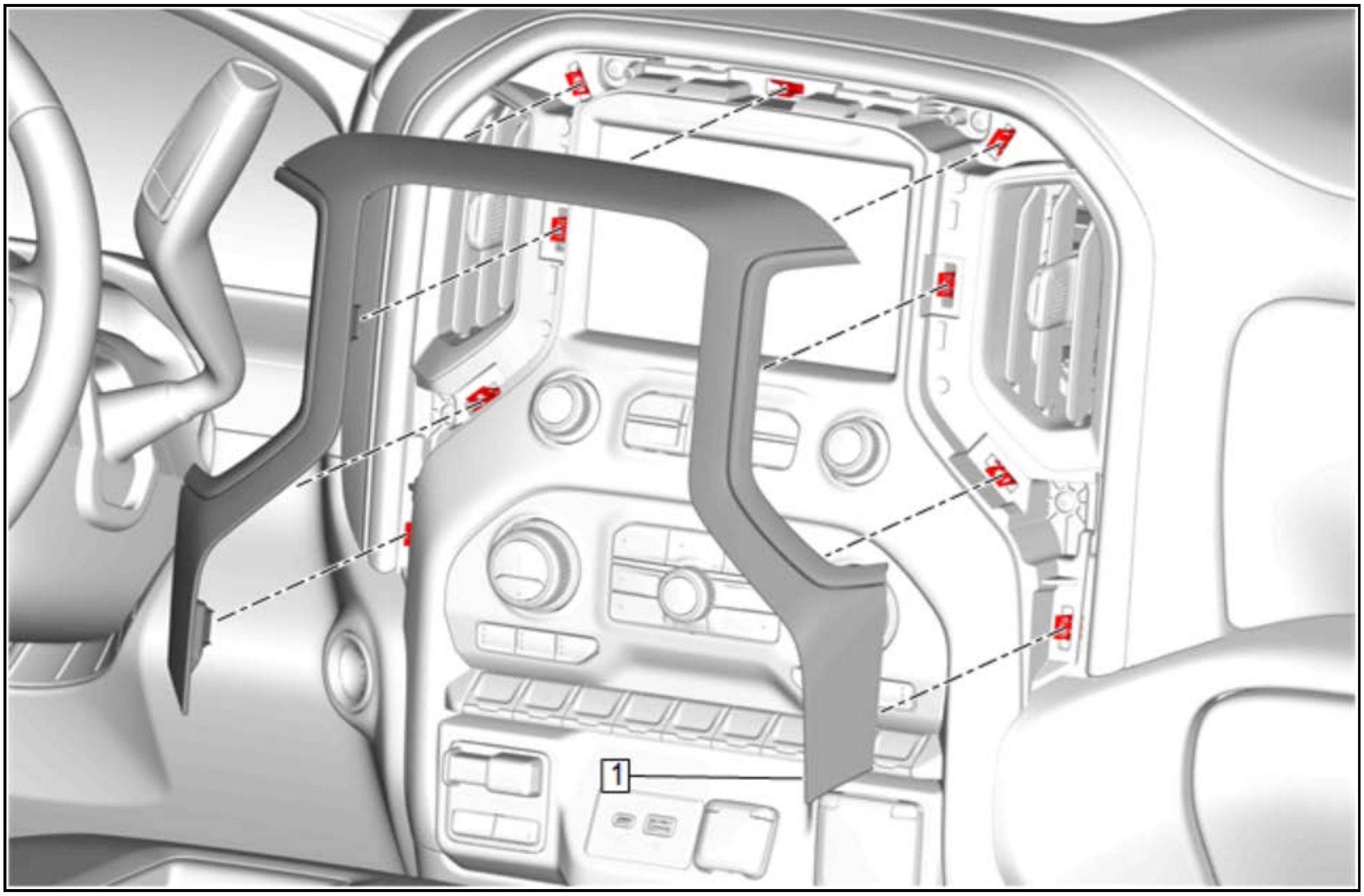


8. Instrument Panel Lower Center Trim Panel (1) » Install



5022868

9. Instrument Panel Lower Trim Panel Bolt (1) »
   Install and tighten

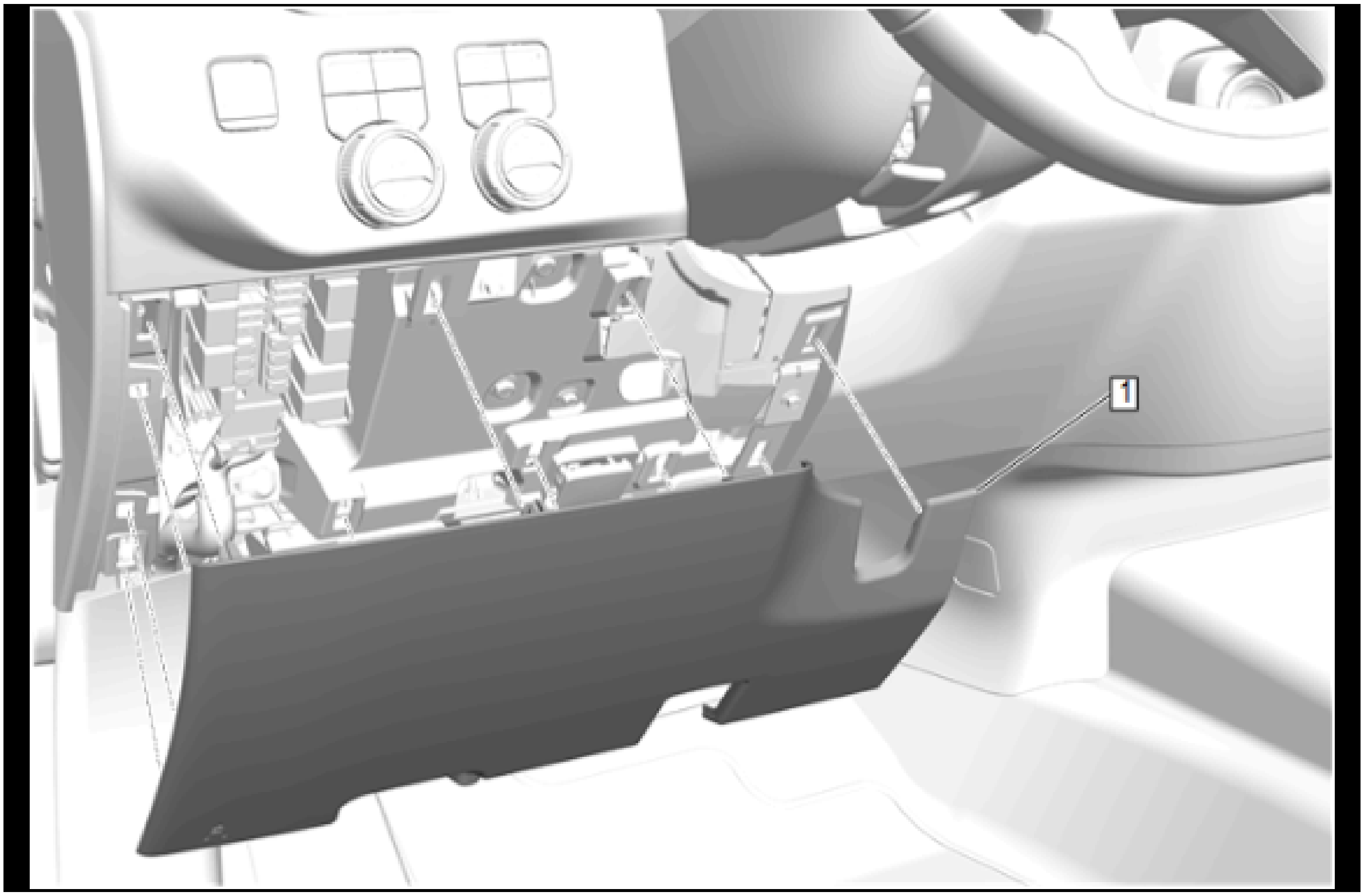


10. Instrument Panel Trim Plate (1) » Install

Low Frequency Console Antenna Replacement

Object-ID=5903245 Owner=Kowalski, Kamil LMD=02-Feb-2022 LMB=Dwamena, Terrance

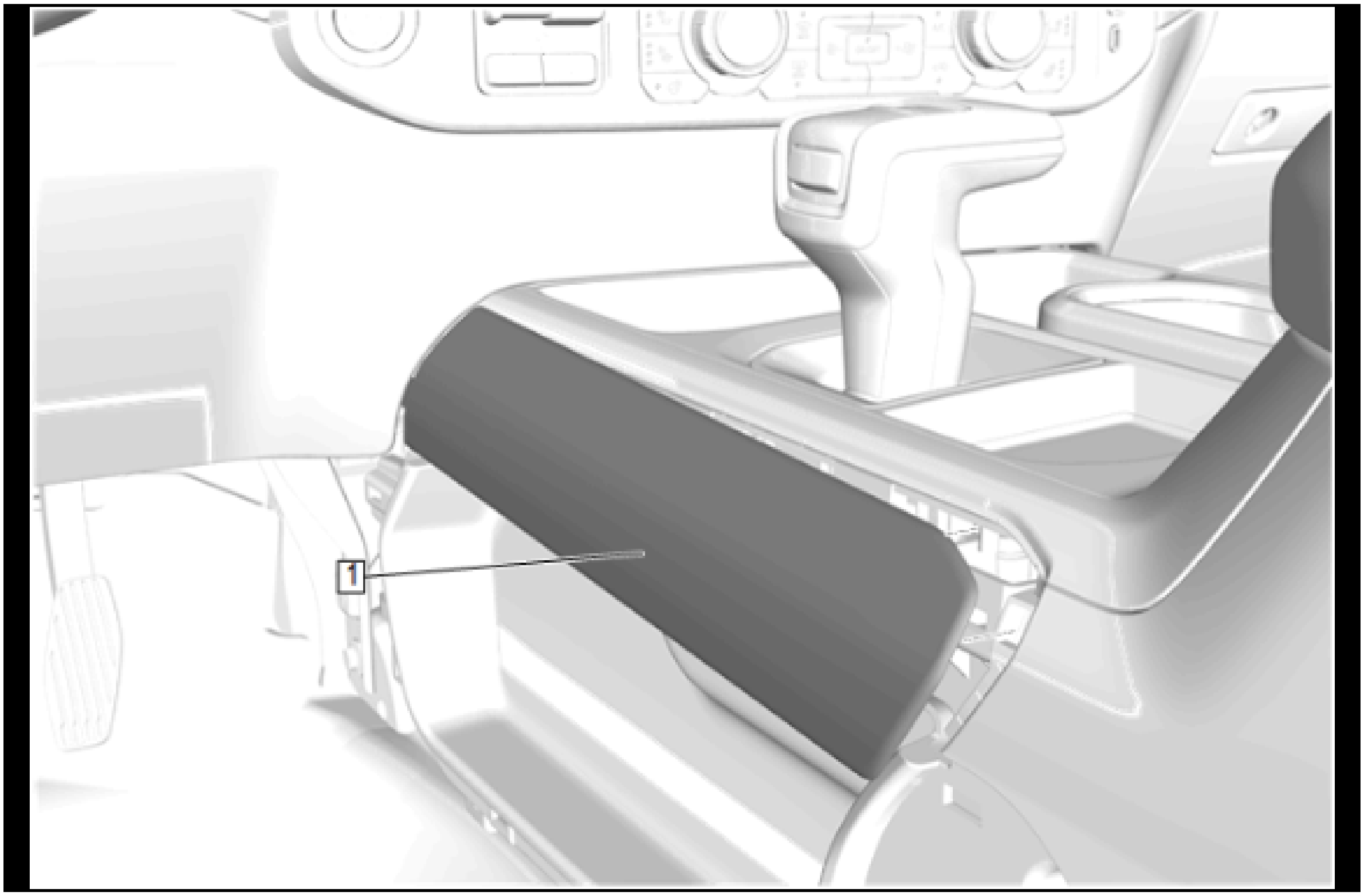
Removal Procedure



5902090

Warning: SIO-ID=2053068 LMD=24-Jan-2008 ***When removing, handling or installing this component wear protective gloves. The sharp edges on the component may be very sharp and may cause injury.***

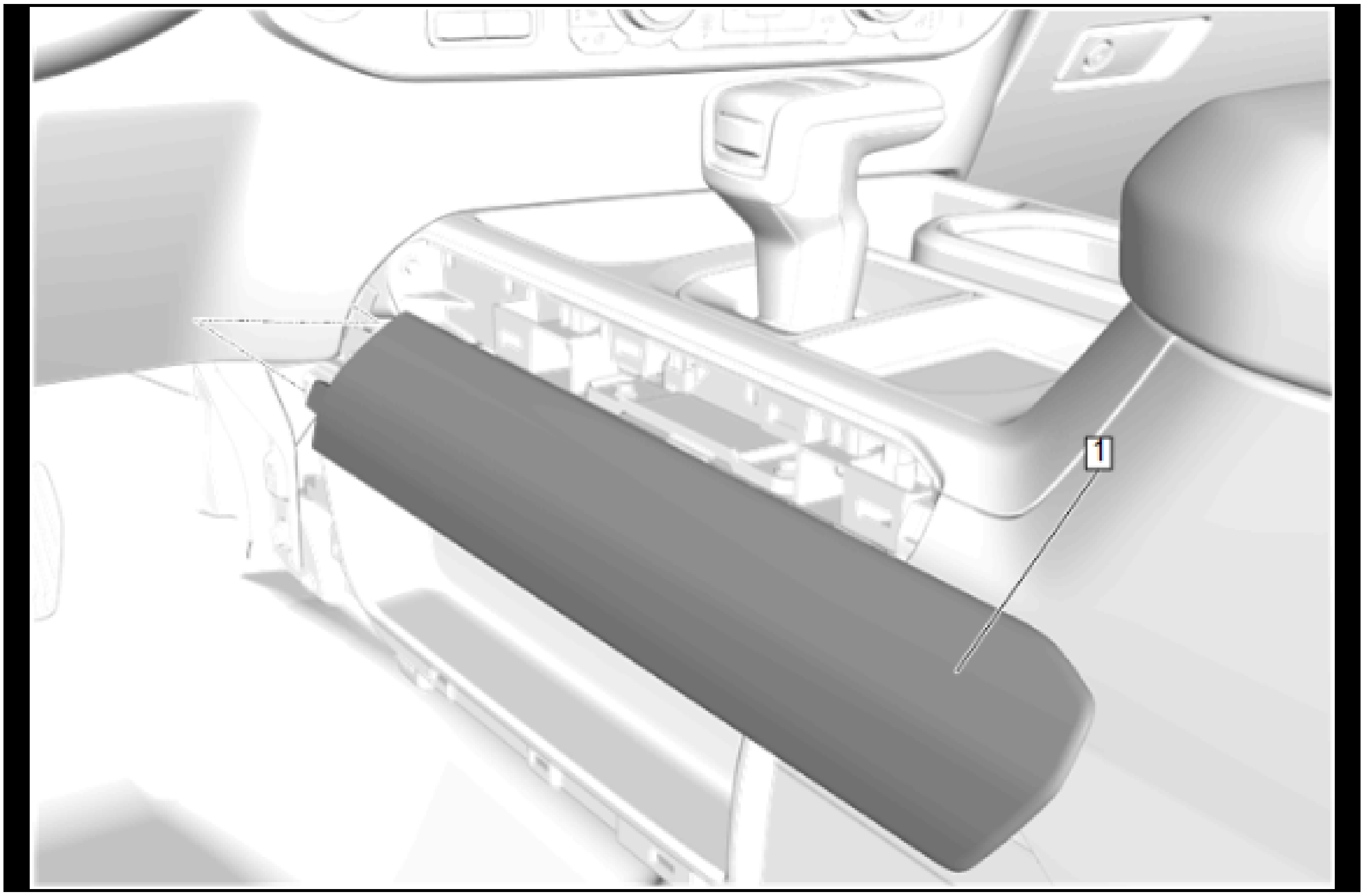
1. Using a flat-bladed plastic trim tool, release the retaining clips.
2. Instrument Panel Knee Bolster (1) » Remove



5902967

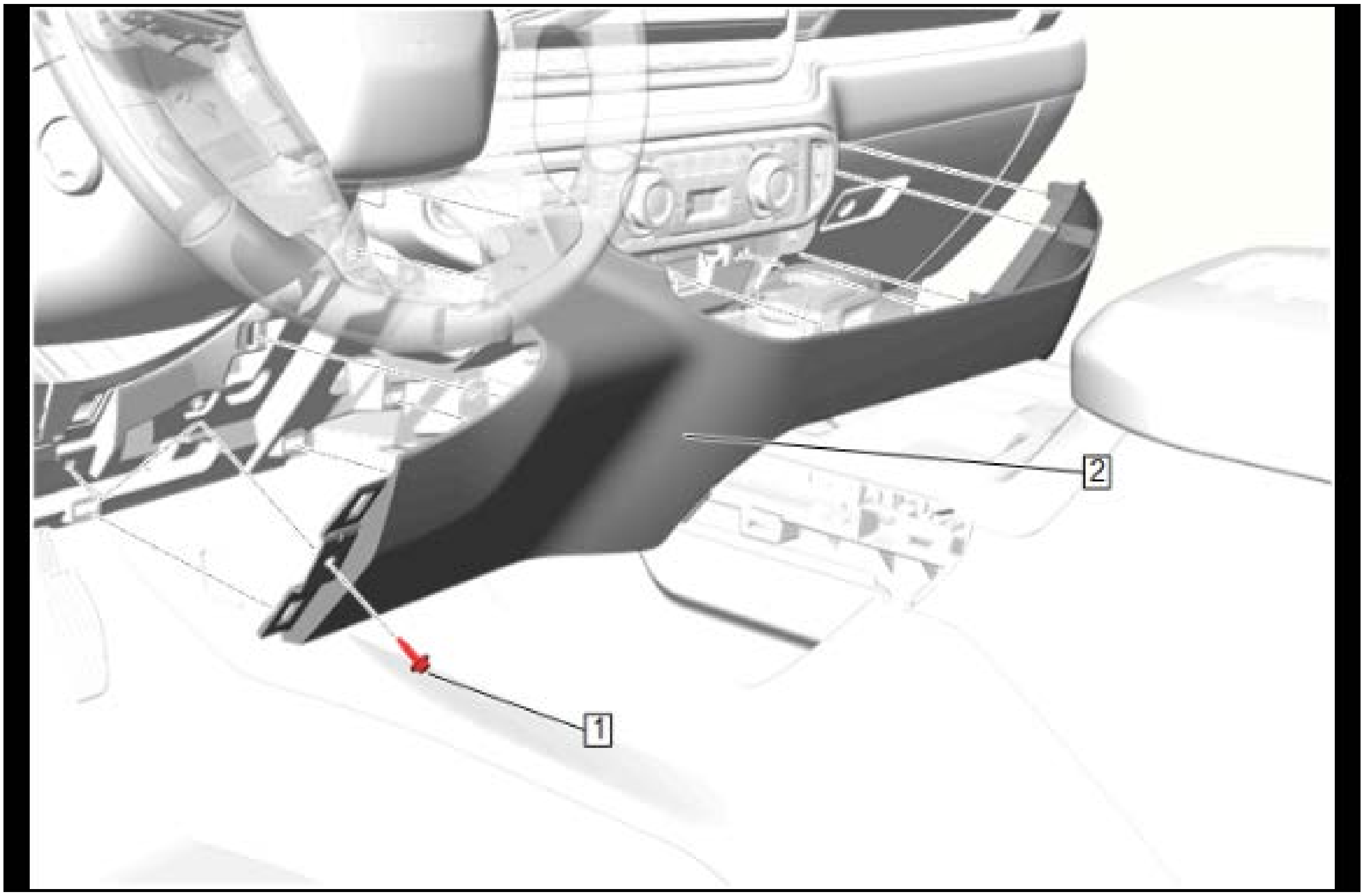
Note: Left side shown, right side similar.

3. Starting from the rear, use a plastic trim tool to release the retainers securing the front floor console applique (1) on both sides of the front floor console.



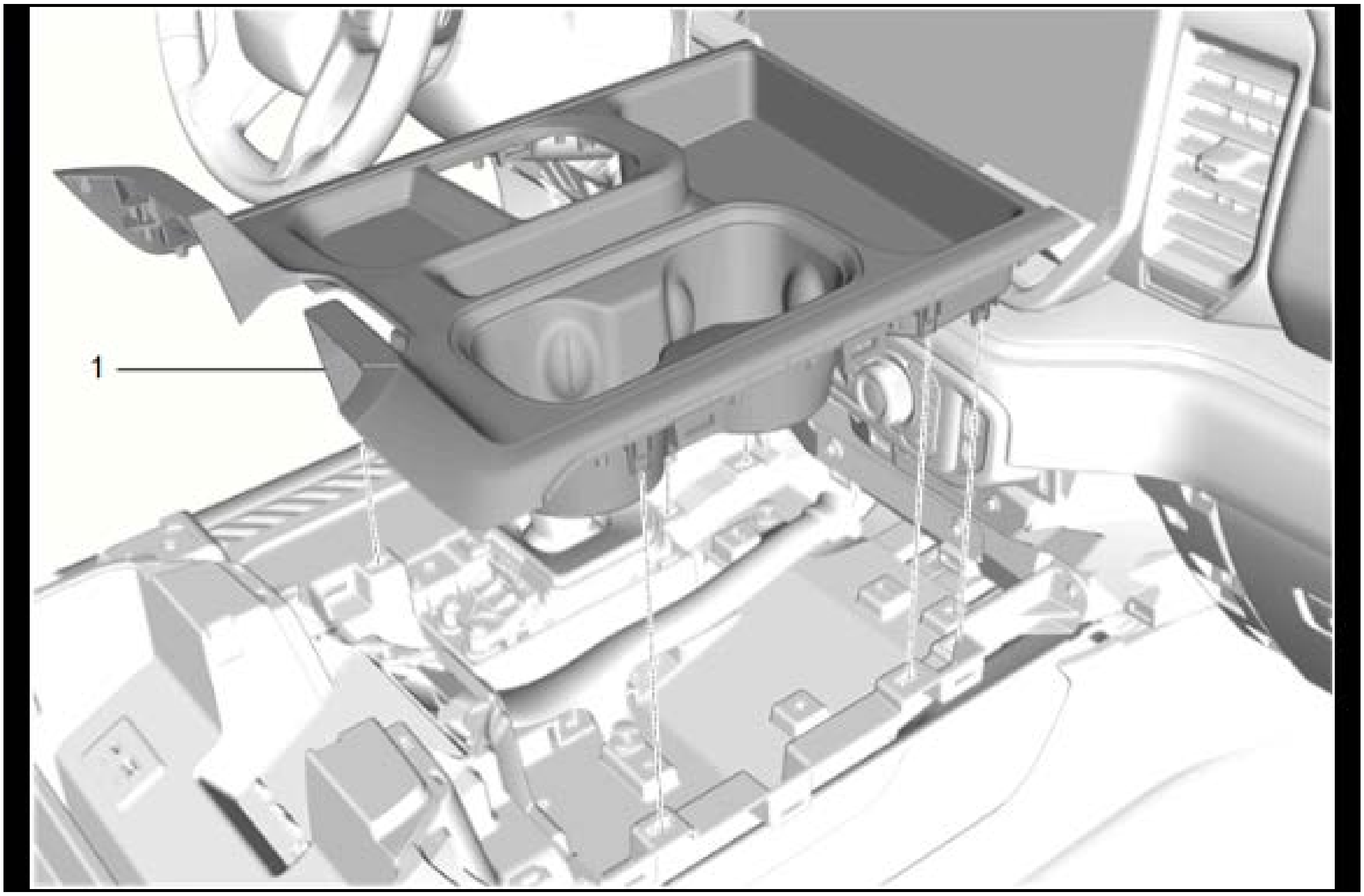
Note: Left side shown, right side similar.

4. Pull the front floor console applique (1) rearward to clear the integral tabs out on both sides of the instrument panel lower trim panel.

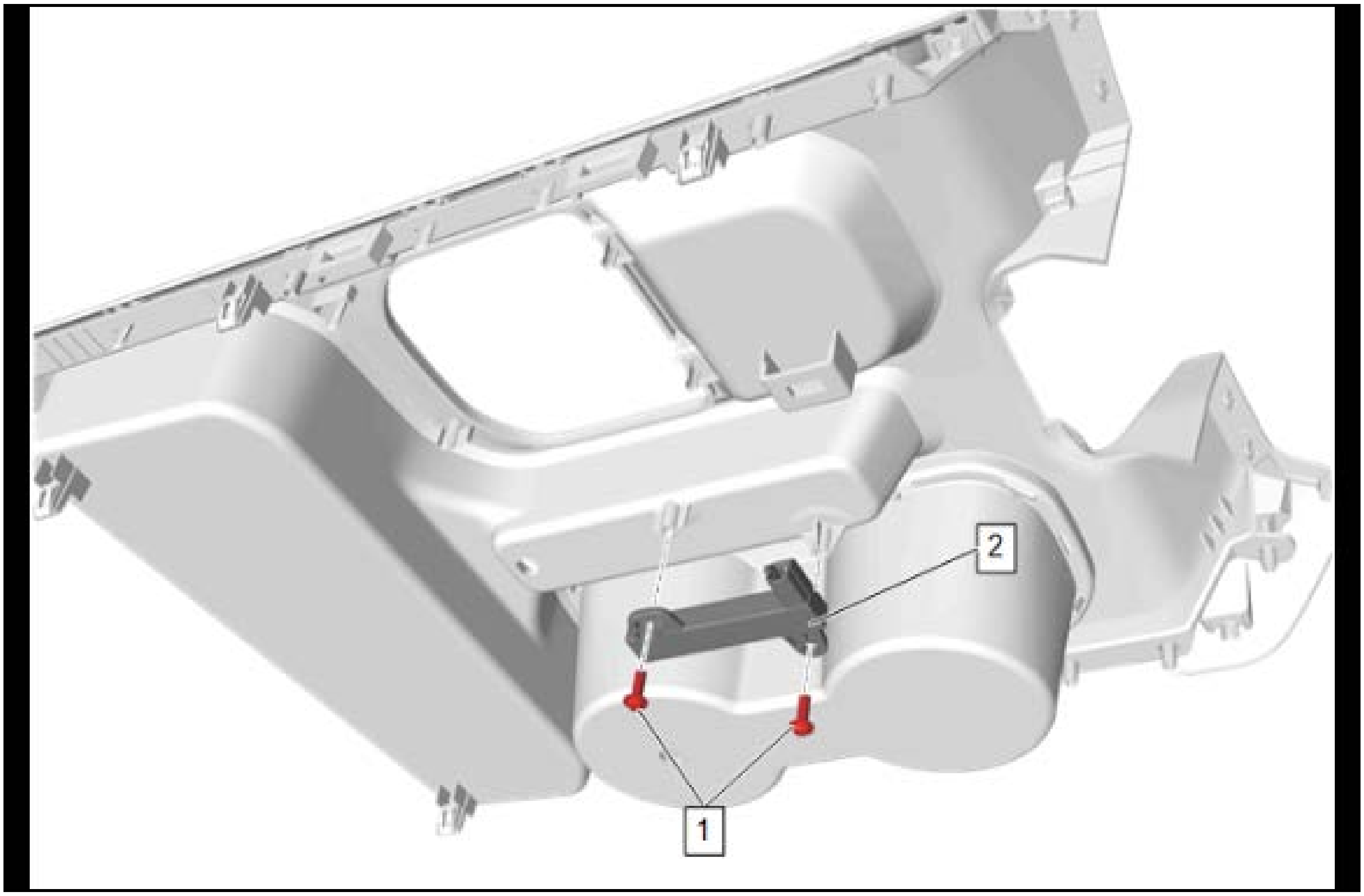


Note: Open the instrument panel compartment door for better access the retaining clips.

5. Instrument Panel Lower Trim Panel Bolt (1) » Remove
6. Using a flat-bladed plastic trim tool, release the retaining clips.
7. Instrument Panel Lower Trim Panel (2) » Remove

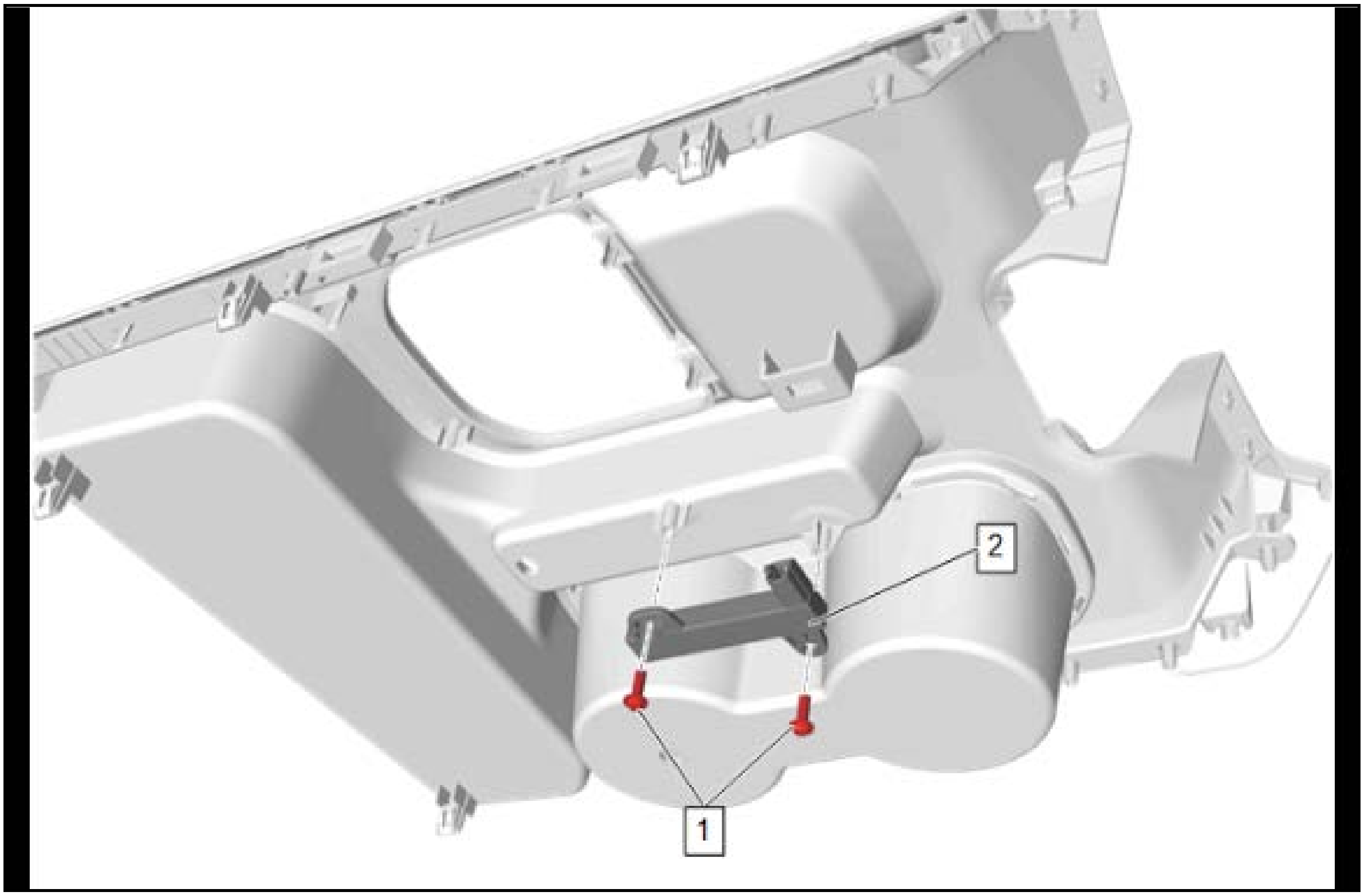


8. Using a flat-bladed plastic trim tool, release the retaining clips.
9. Reposition the component to access the electrical connector.
10. Disconnect the electrical connector.
11. Wiring Harness Retainer » Release
12. Front Floor Console Cup Holder Trim Plate (1) » Remove

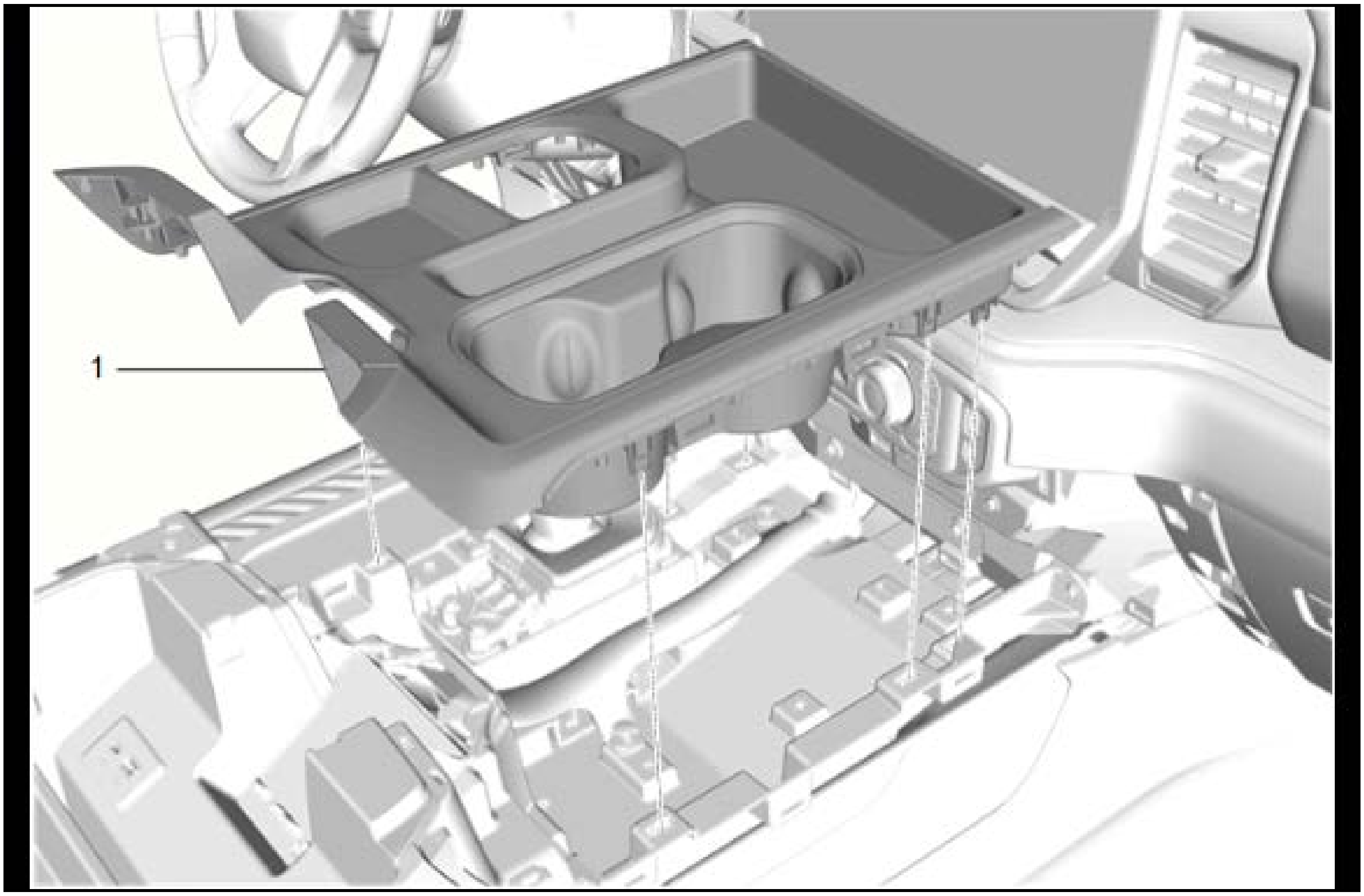


13. Theft Deterrent Module Bolt (1) » Remove [2x]
14. Low Frequency Console Antenna (2) » Remove

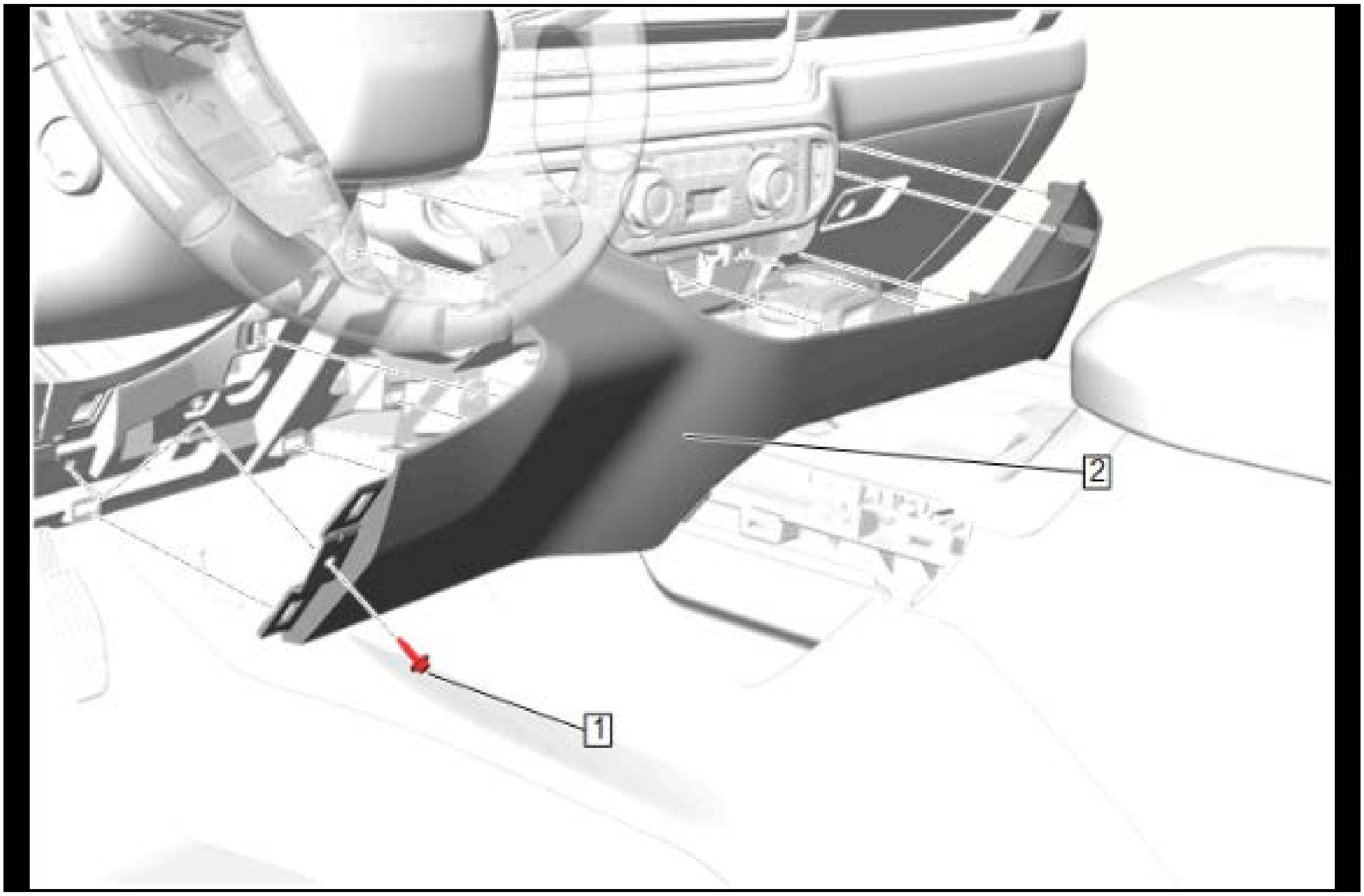
Installation Procedure



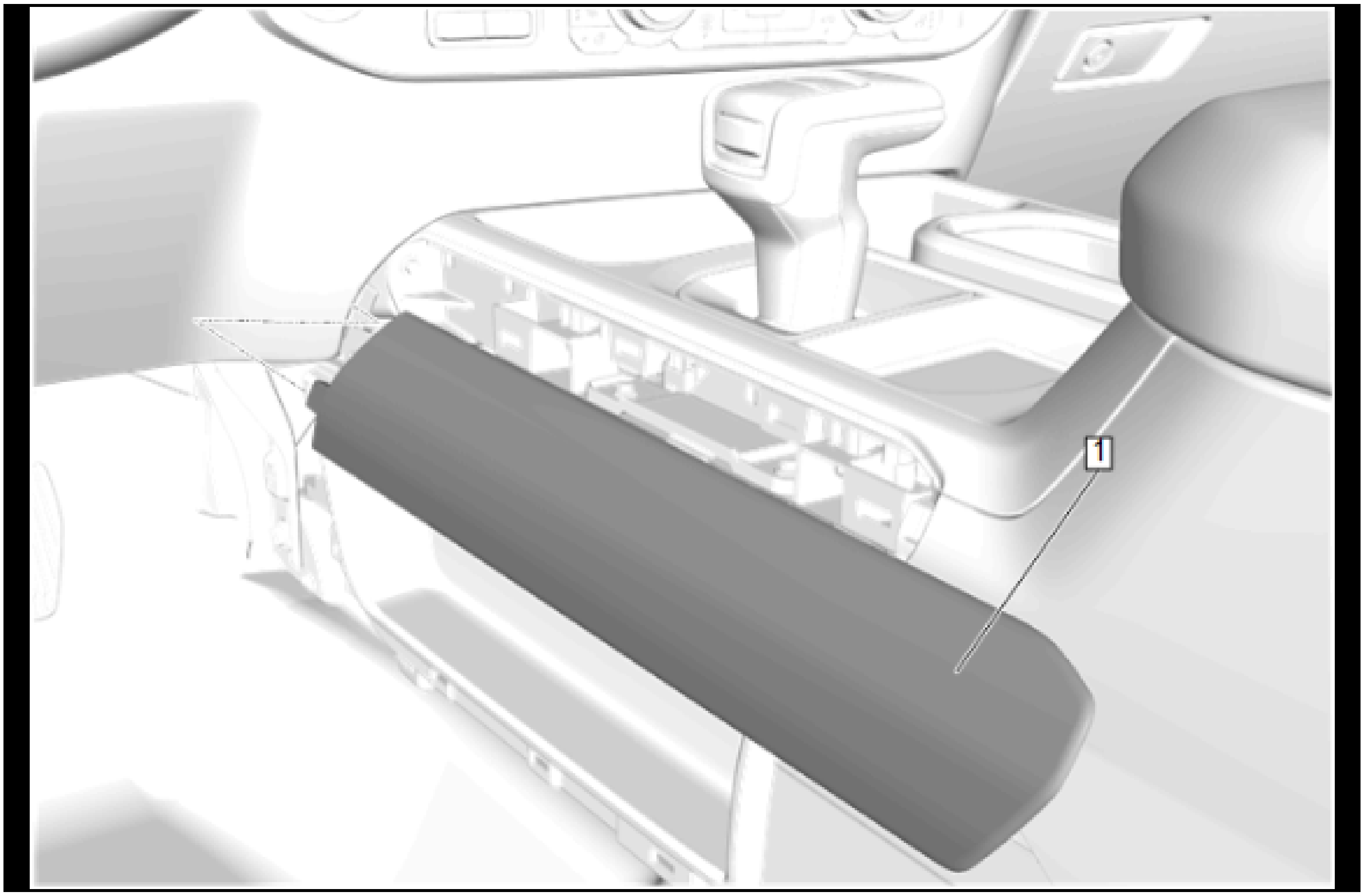
1. Low Frequency Console Antenna (2) » Install
2. Theft Deterrent Module Bolt (1) » Install and tighten [2x] — *Fastener Specifications on page 8-218*



3. Connect the electrical connector.
4. Wiring Harness Retainer » Install
5. Front Floor Console Cup Holder Trim Plate (1) » Install



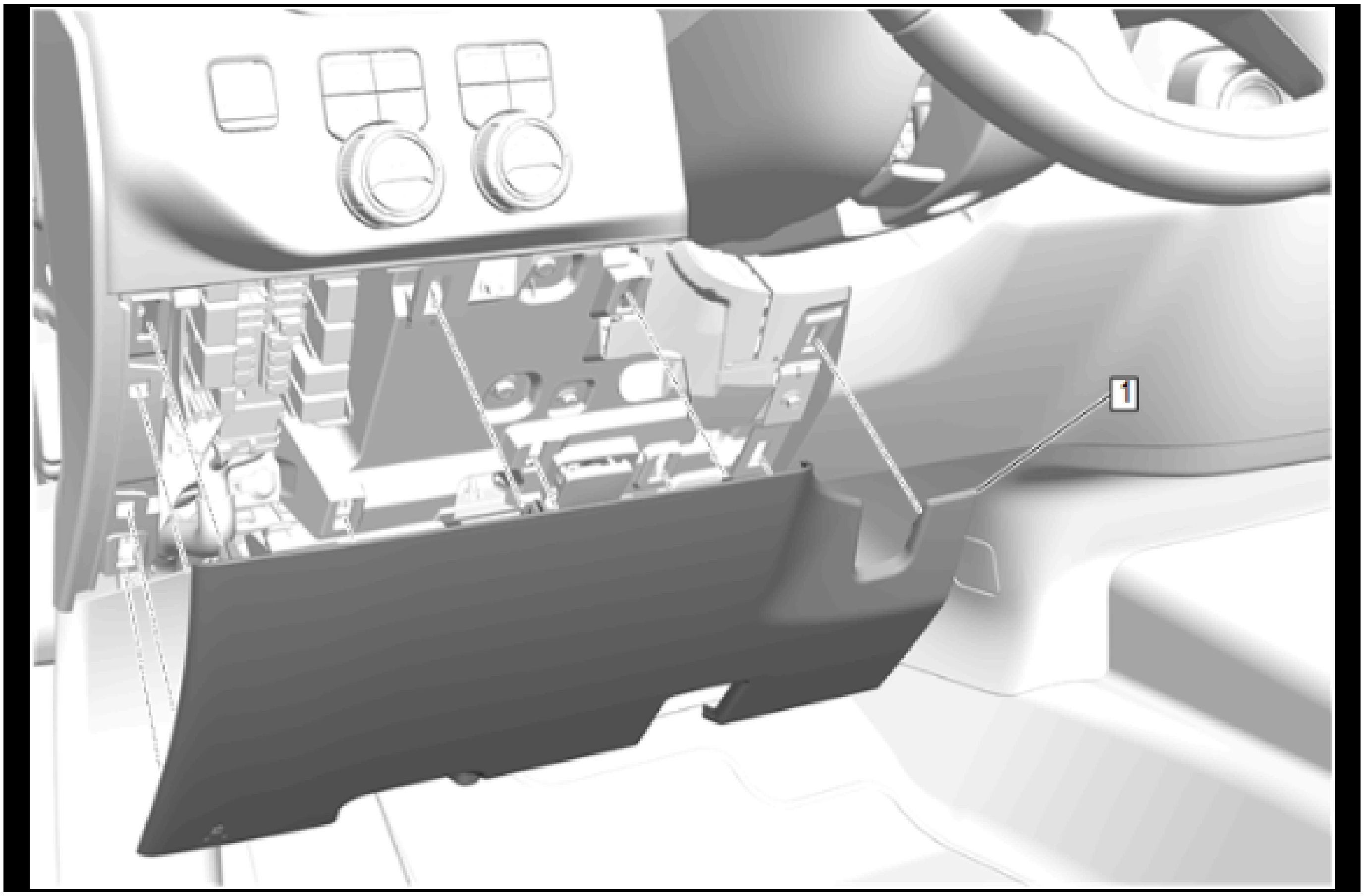
6. Instrument Panel Lower Trim Panel (2) » Install
7. Instrument Panel Lower Trim Panel Bolt (1) » Install and tighten



5902968

Note: Left side shown, right side similar.

8. Front Floor Console Applique - Left Side and Right Side (1) » Install [2x]



5902090

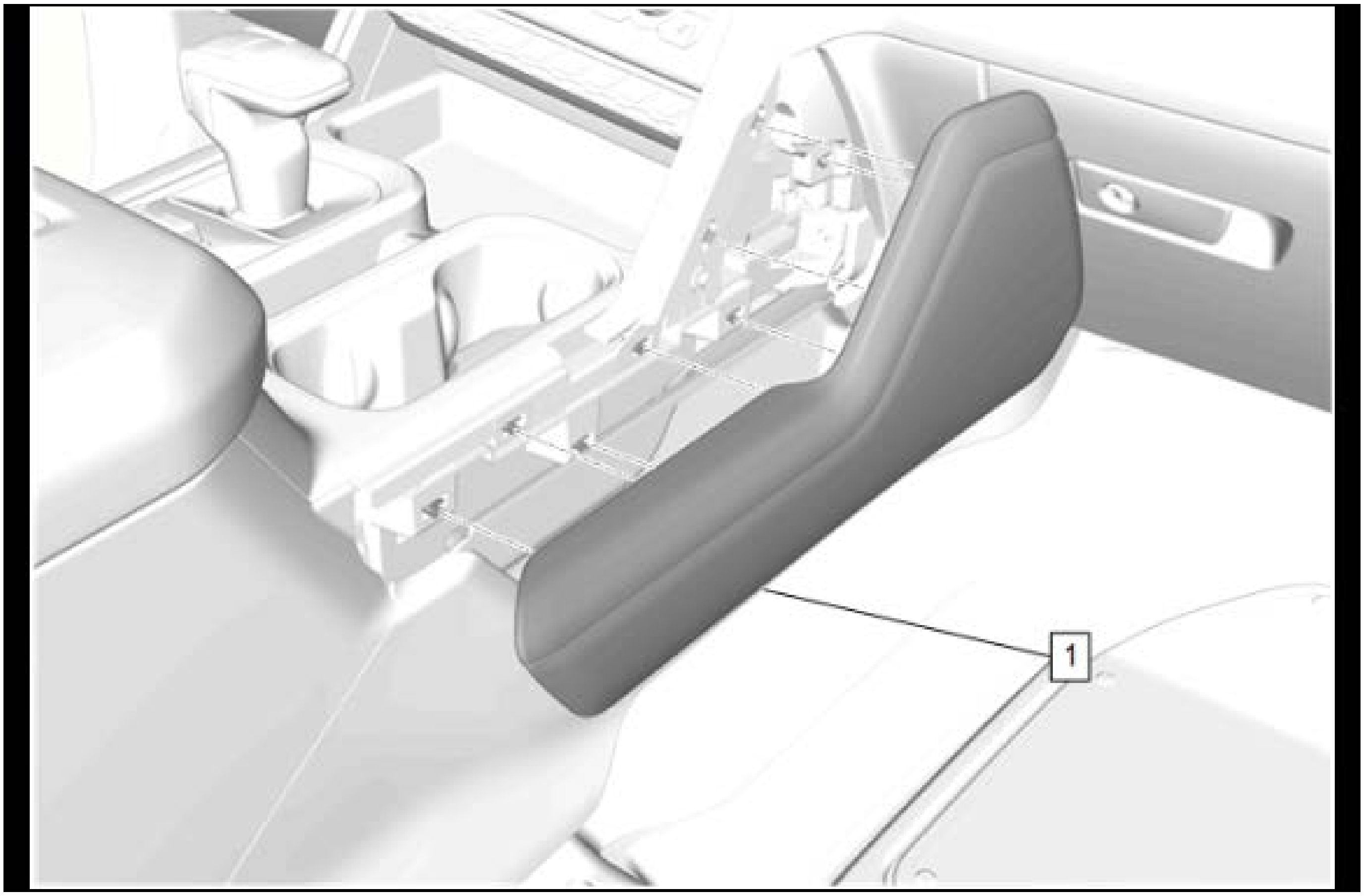
Warning: SIO-ID=2053068 LMD=24-Jan-2008 ***When removing, handling or installing this component wear protective gloves. The sharp edges on the component may be very sharp and may cause injury.***

9. Instrument Panel Knee Bolster (1) » Install

Low Frequency Console Antenna Replacement

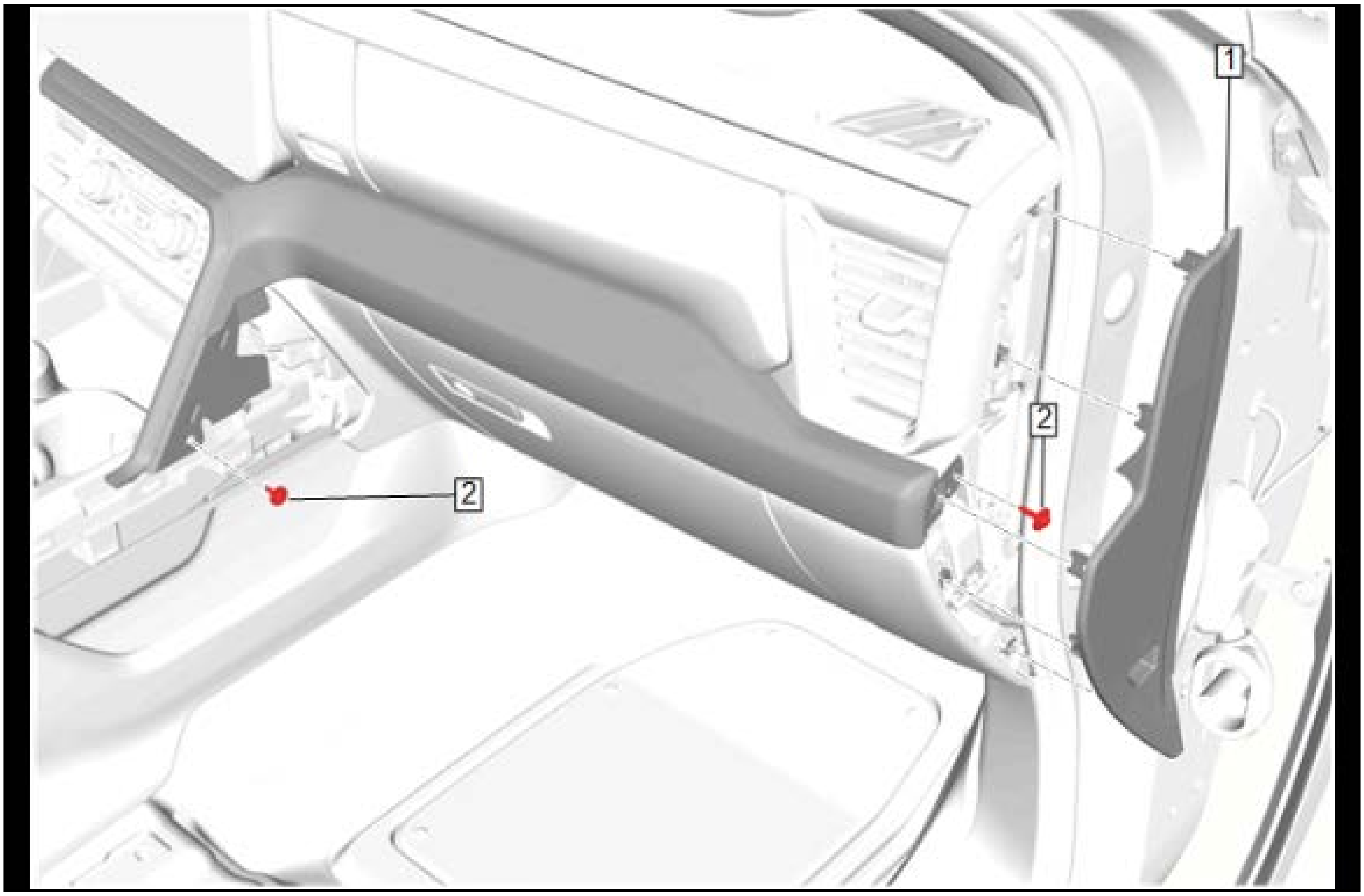
Object-ID=5906839 Owner=Kowalski, Kamil LMD=19-Jan-2022 LMB=Raddatz, Klaus

Removal Procedure

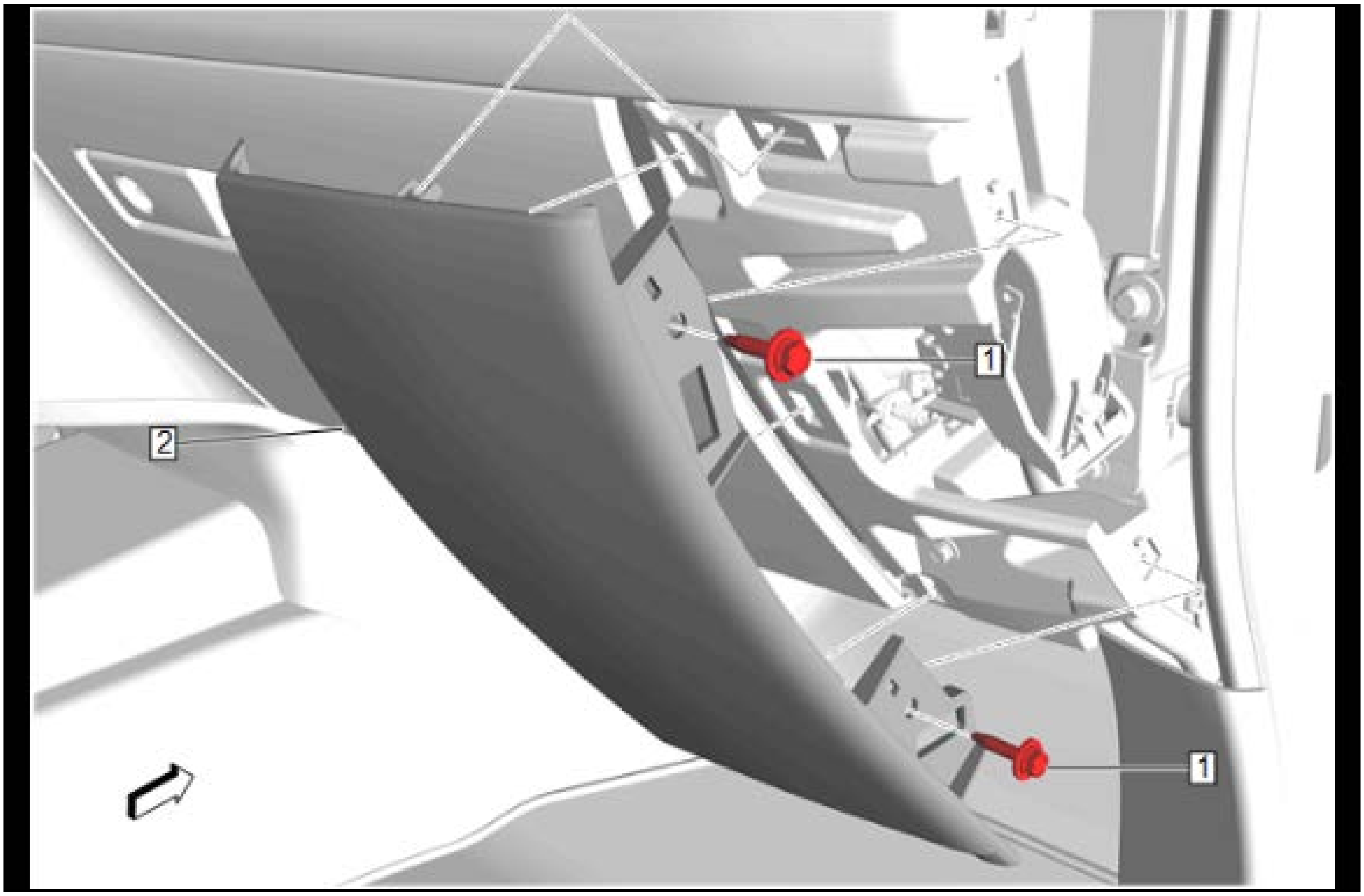


5912622

1. Using a flat-bladed plastic trim tool, release the retaining clips.
2. Front Floor Console Lower Applique - Right Side (1) » Remove



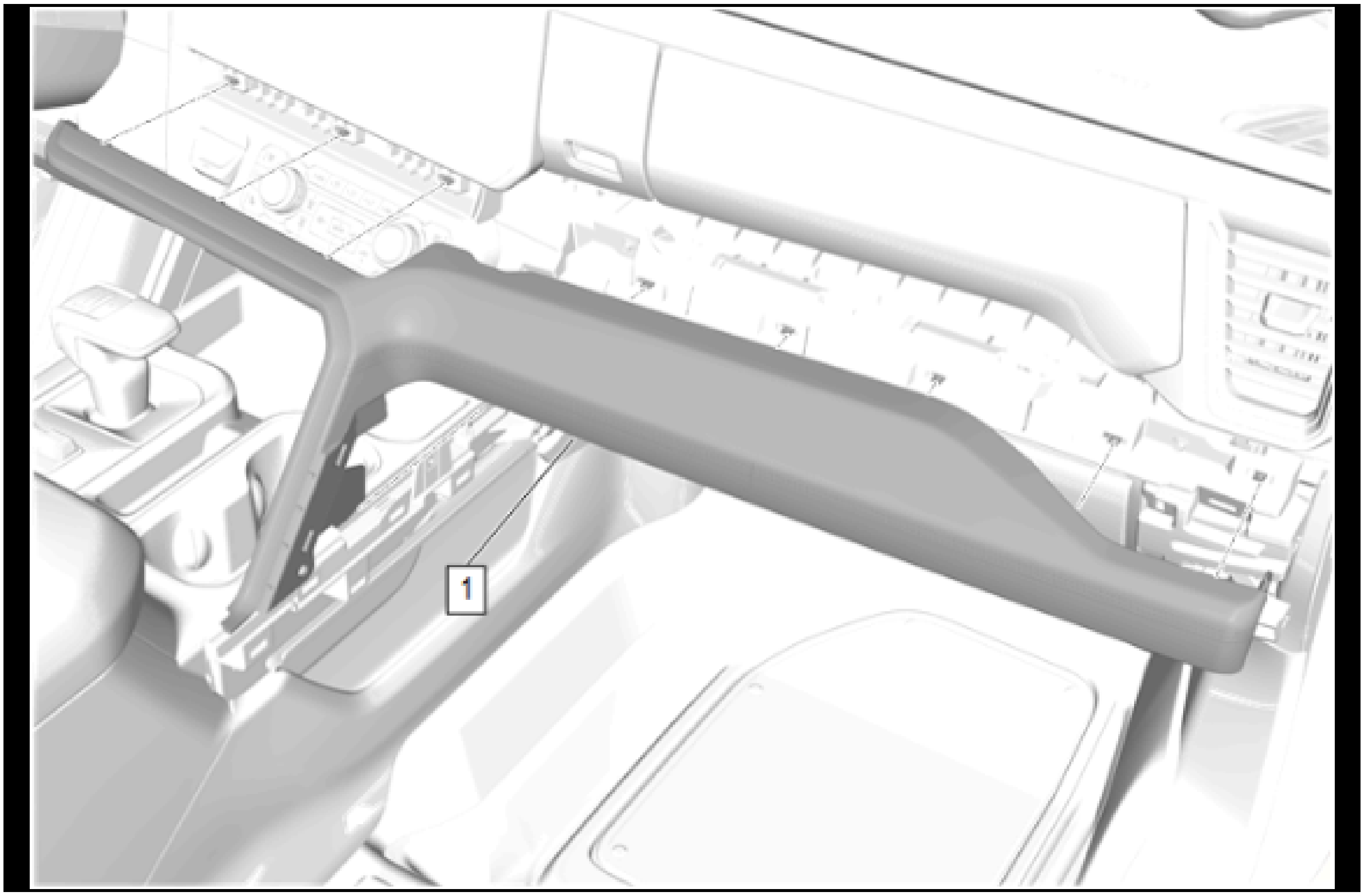
3. Using a flat-bladed plastic trim tool, release the retaining clips.
4. Instrument Panel Fuse Block Access Hole Cover (1) » Remove
5. Instrument Panel Trim Pad Bolt (2) » Remove [2x]



6. Instrument Panel Lower Trim Panel Outer Filler Bolt (1) » Remove [2x]

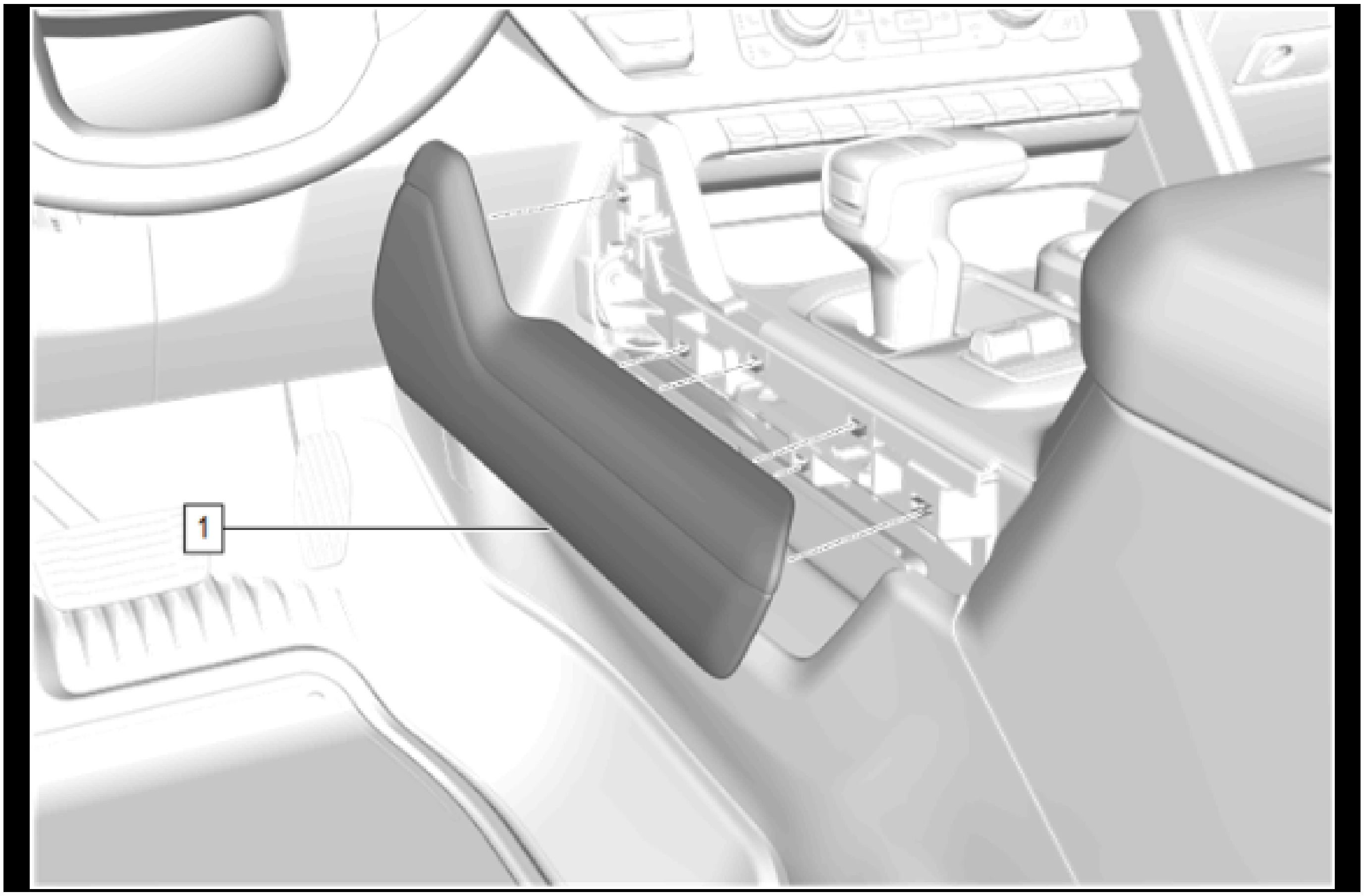
   Note: Use a plastic trim tool if necessary.

7. Instrument Panel Lower Trim Panel Outer Filler (2) » Remove



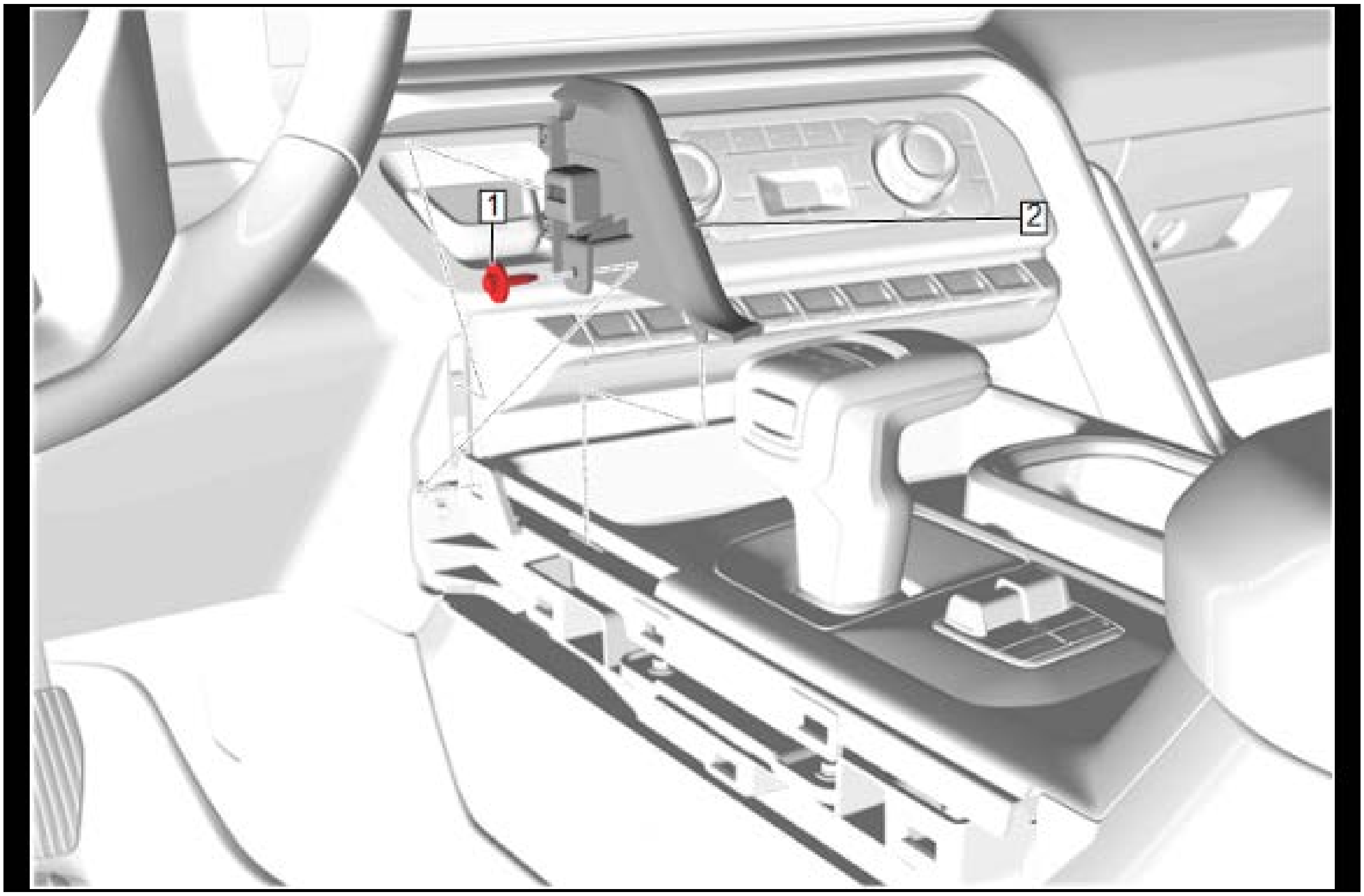
5912625

8. Using a flat-bladed plastic trim tool, release the retaining clips.
9. Instrument Panel Trim Pad - Right Side (1) » Remove

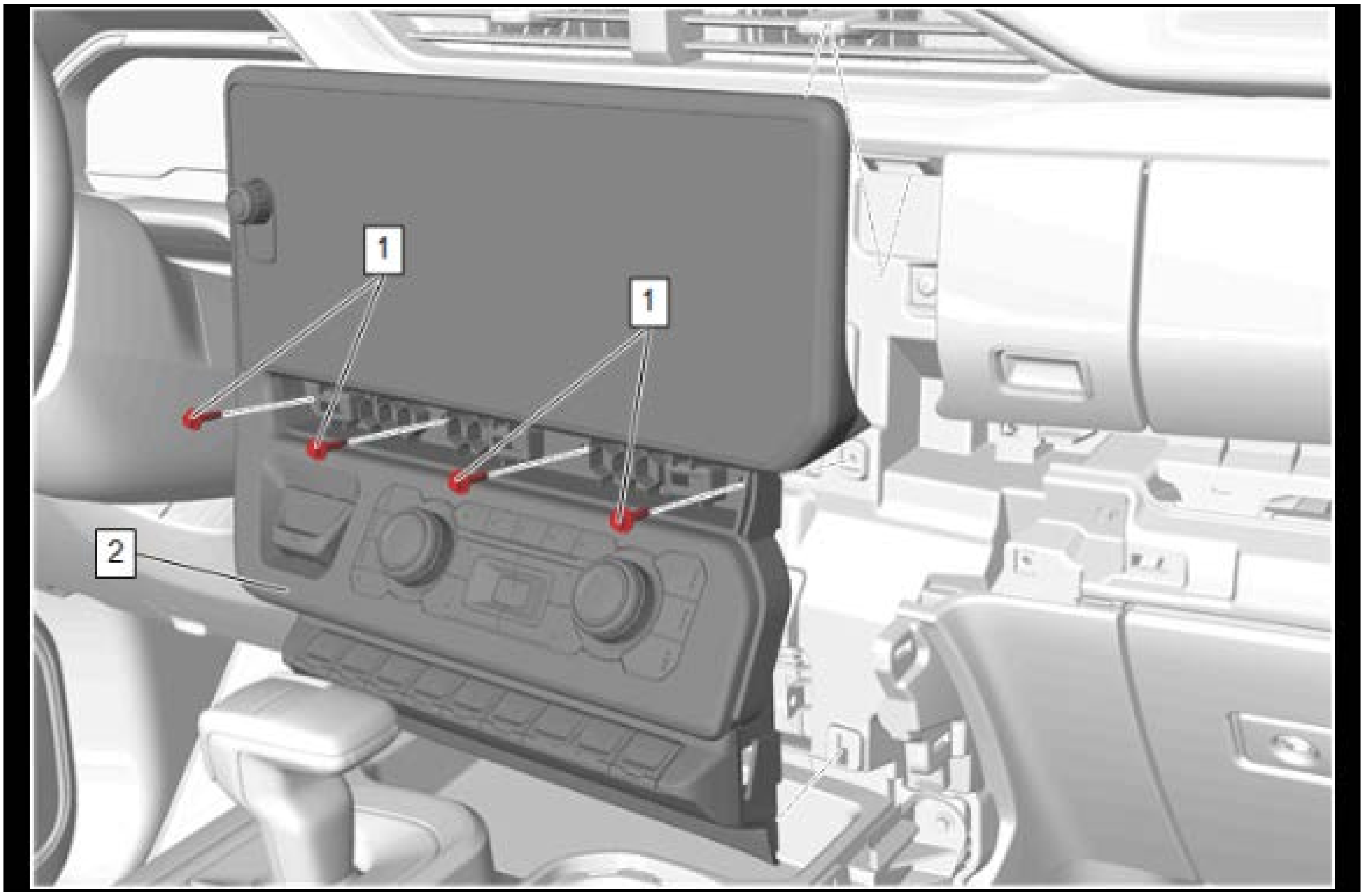


5912621

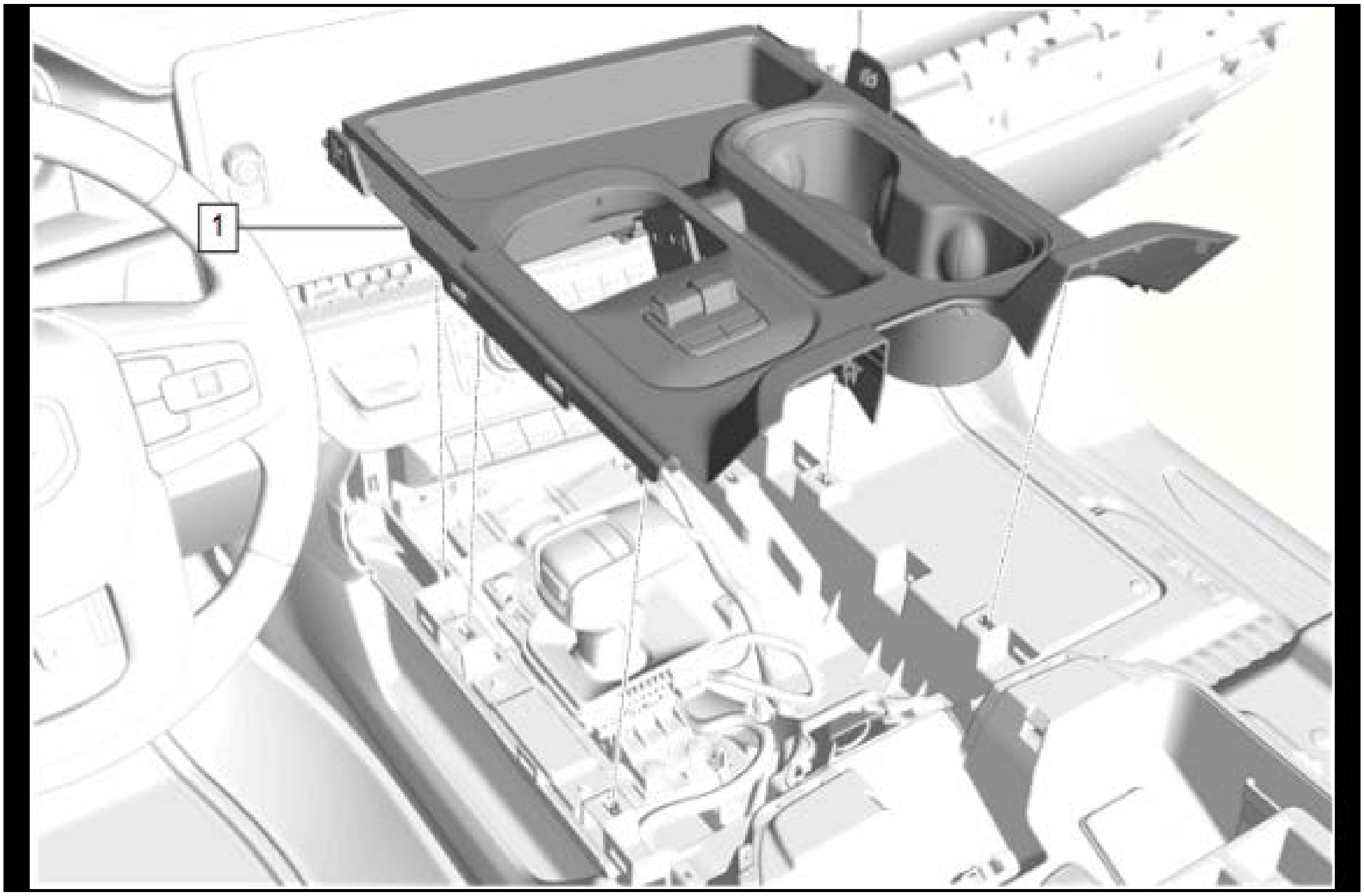
10. Using a flat-bladed plastic trim tool, release the retaining clips.
11. Front Floor Console Lower Applique - Left Side (1)
    » Remove



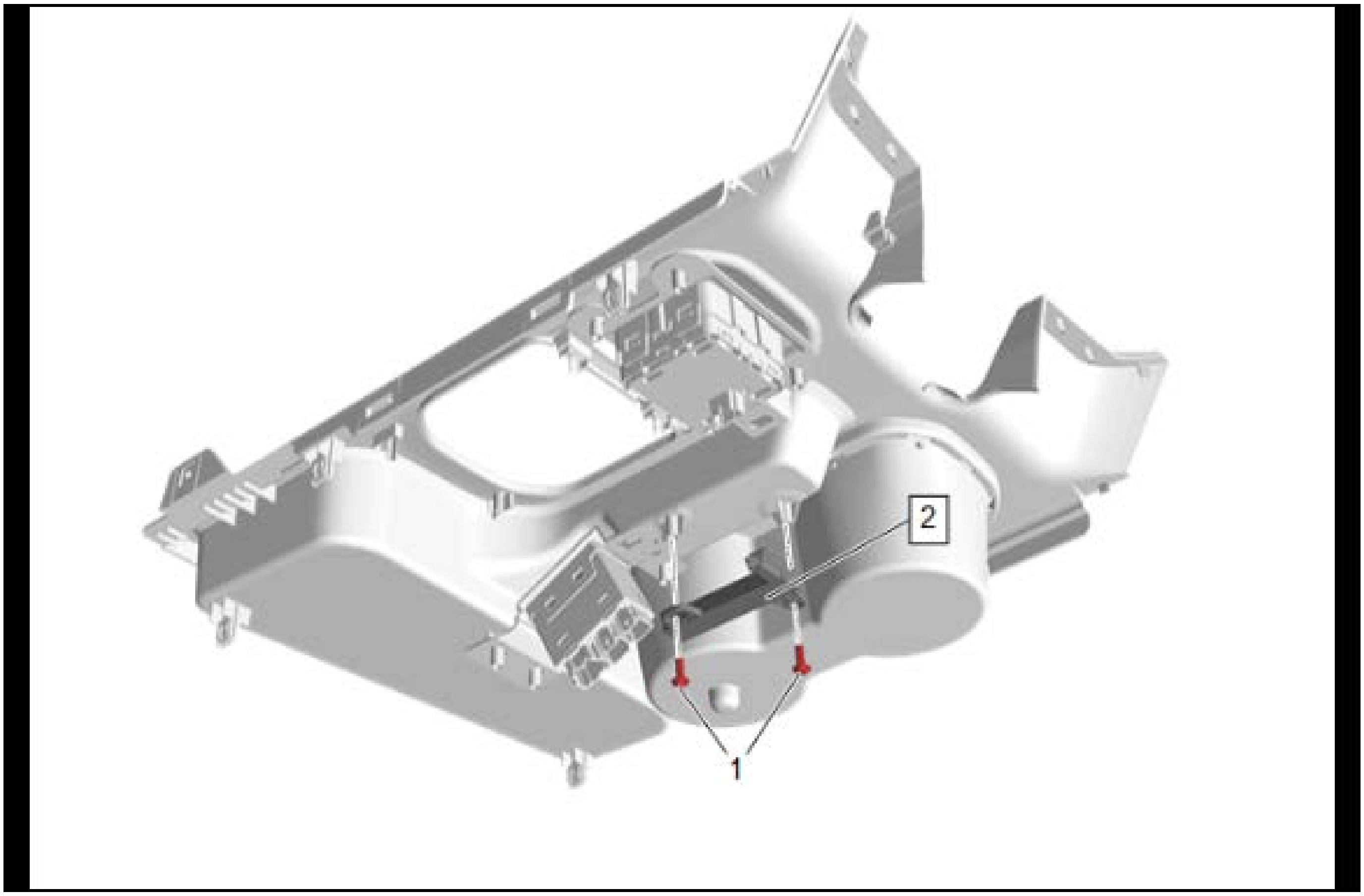
12. Front Floor Console Applique Bolt (1) » Remove
13. Front Floor Console Applique (2) » Remove



14. Radio Control Bolt (1) » Remove [4x]
15. Radio Control (2) » Remove
16. Disconnect the electrical connectors.



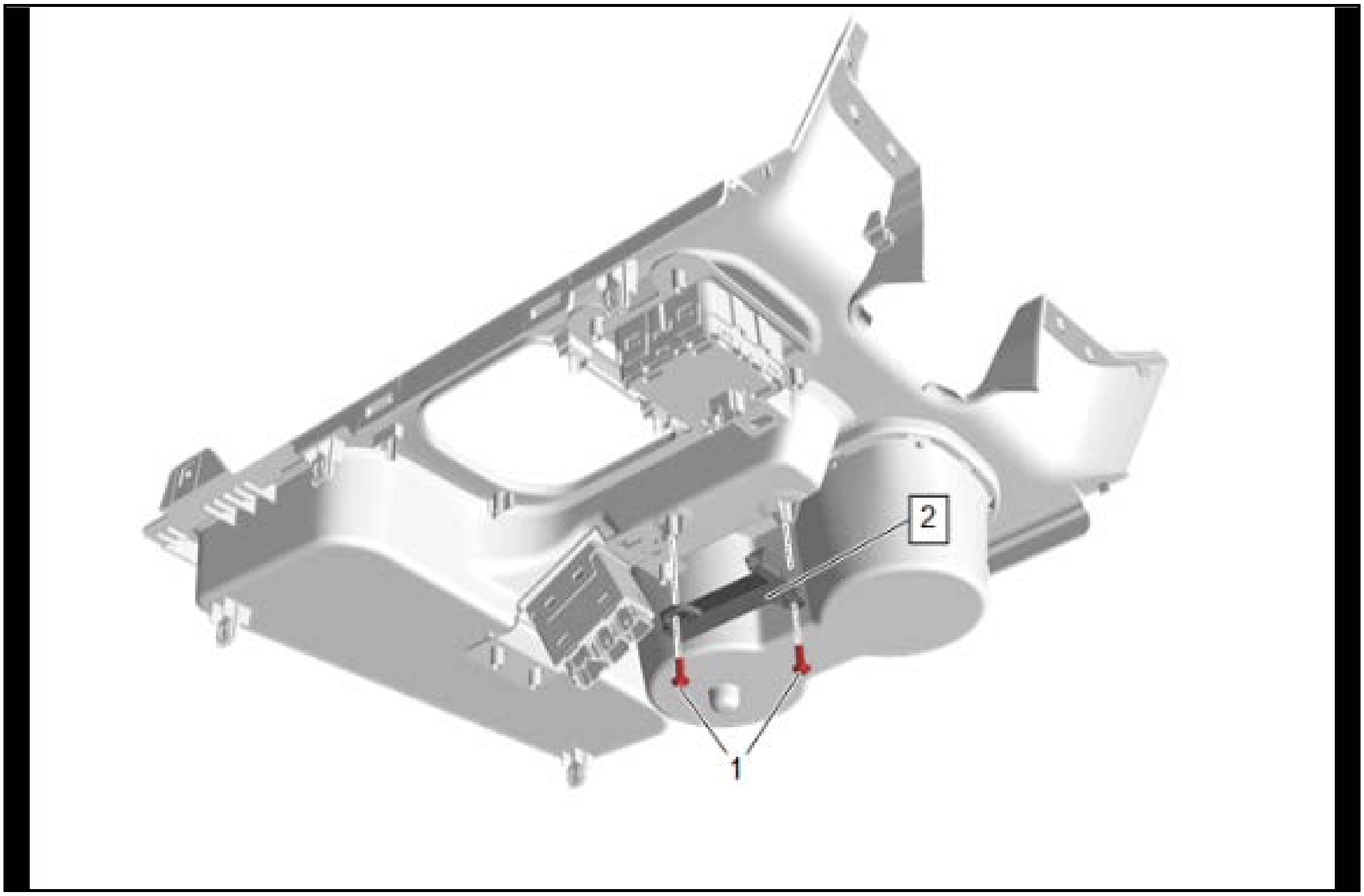
17. Using a flat-bladed plastic trim tool, release the retaining clips.
18. Reposition the component to access the electrical connector.
19. Disconnect the electrical connectors.
20. Front Floor Console Cup Holder Trim Plate (1) » Remove



5905878

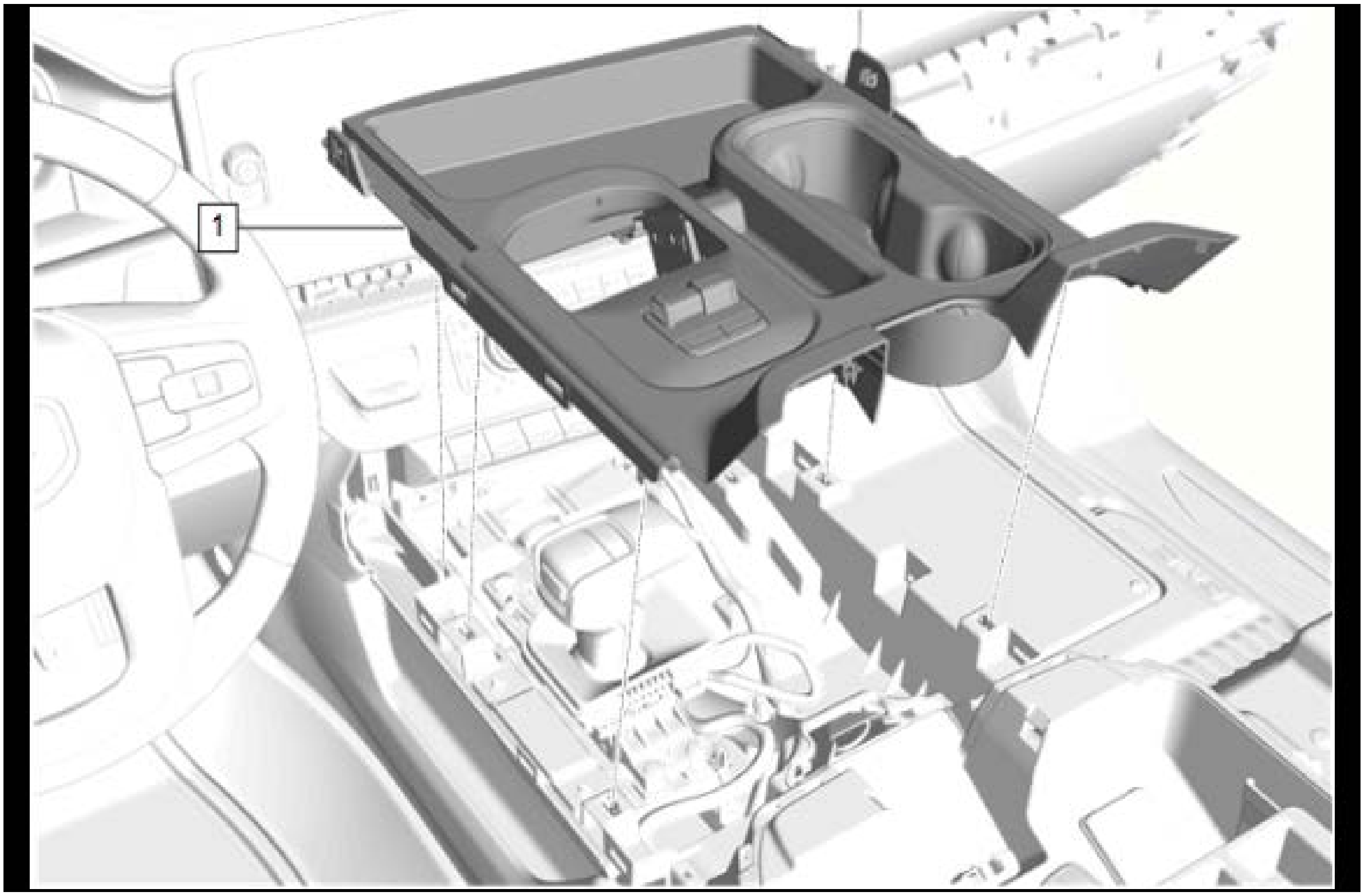
21. Theft Deterrent Module Bolt (1) » Remove [2x]
22. Low Frequency Console Antenna (2) » Remove

Installation Procedure



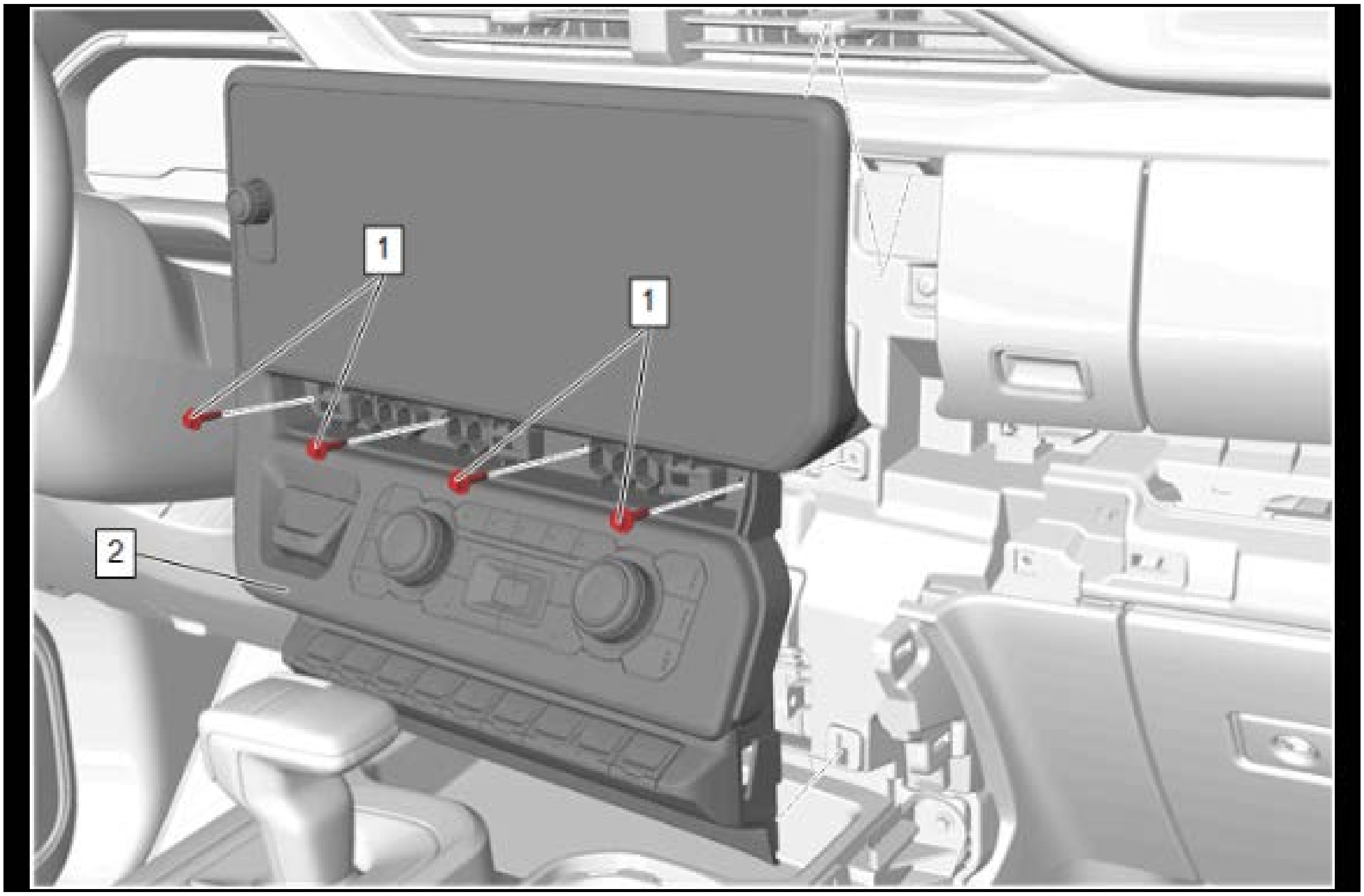
5905878

1. Low Frequency Console Antenna (2) » Install
2. Theft Deterrent Module Bolt (1) » Install and tighten [2x] — *Fastener Specifications on page 8-218*



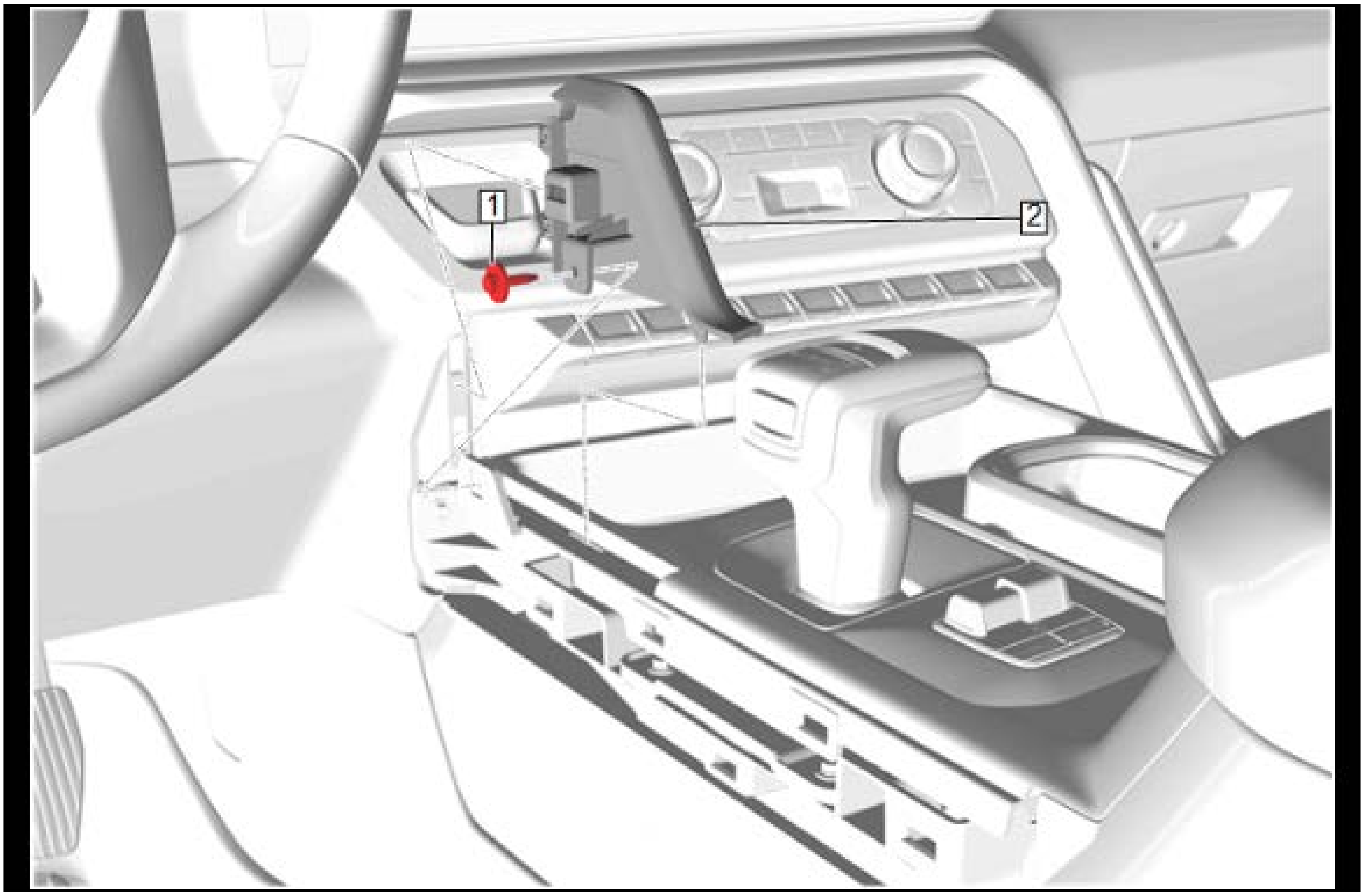
5921578

3. Connect the electrical connectors.
4. Front Floor Console Cup Holder Trim Plate (1) » Install

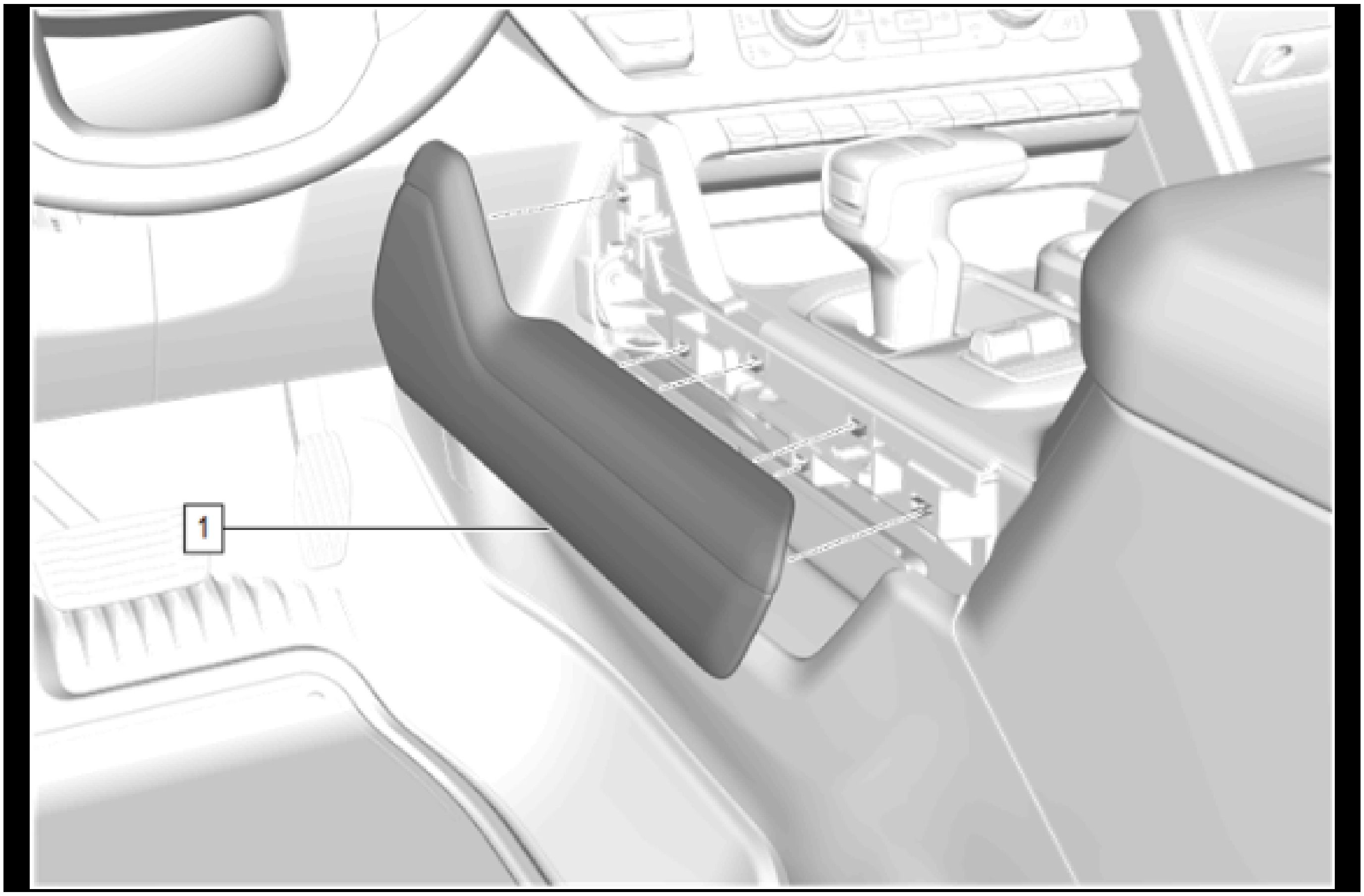


5905707

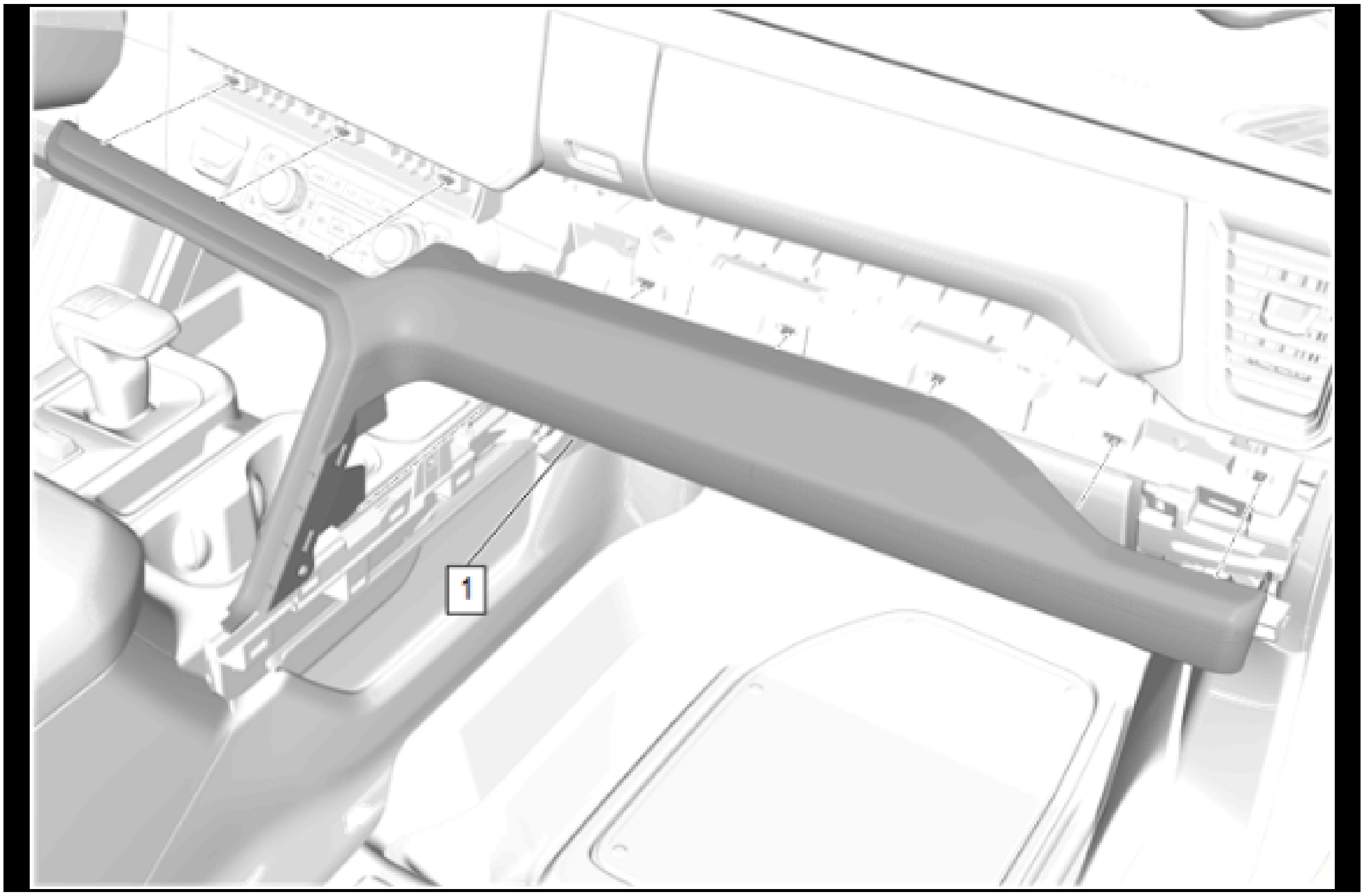
5. Connect the electrical connectors.
6. Radio Control (2) » Install
7. Radio Control Bolt (1) » Install and tighten [4x]



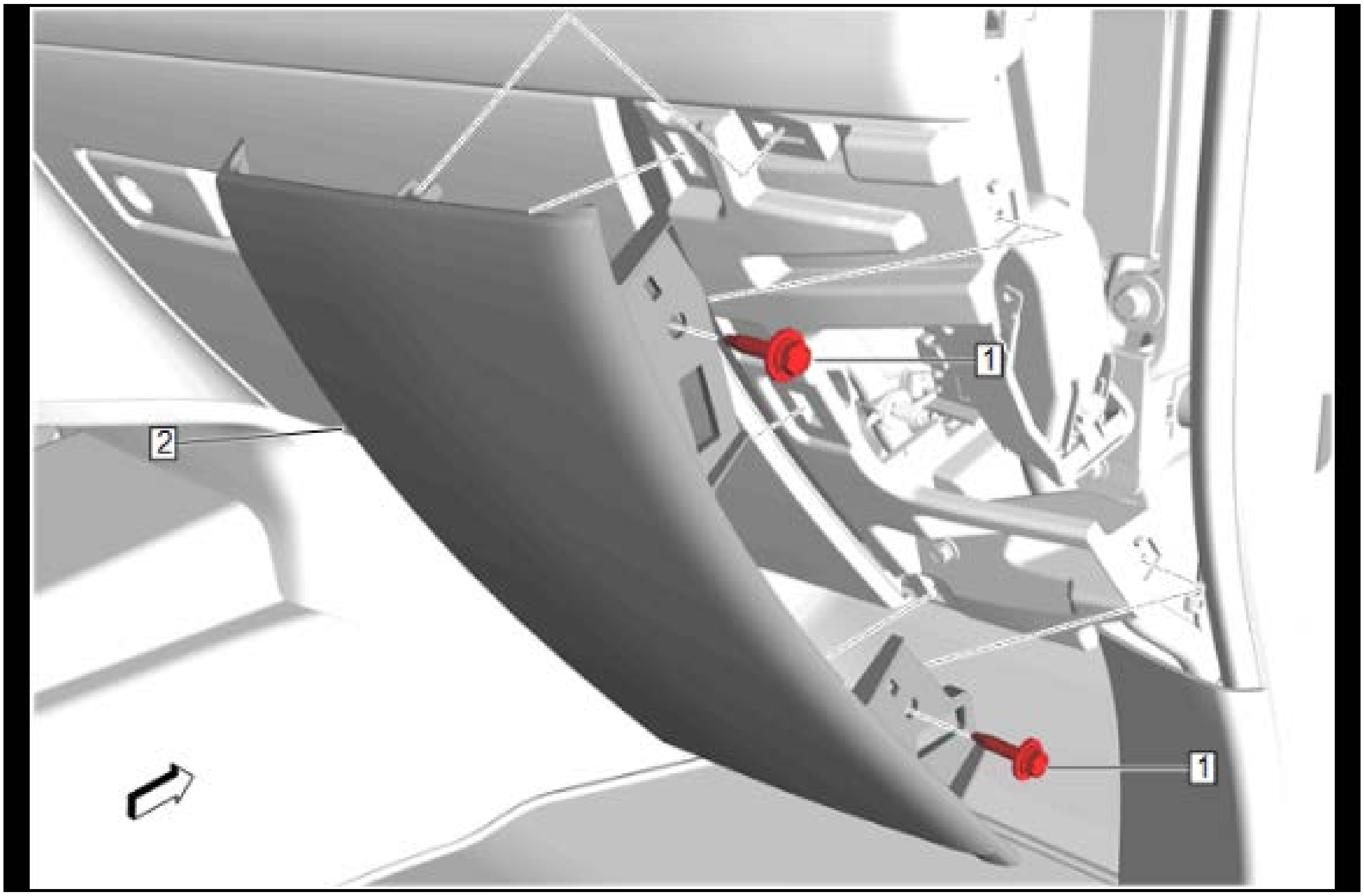
8. Front Floor Console Applique (2) » Install
9. Front Floor Console Applique Bolt (1) » Install and tighten



10. Front Floor Console Lower Applique - Left Side (1)
    - » Install

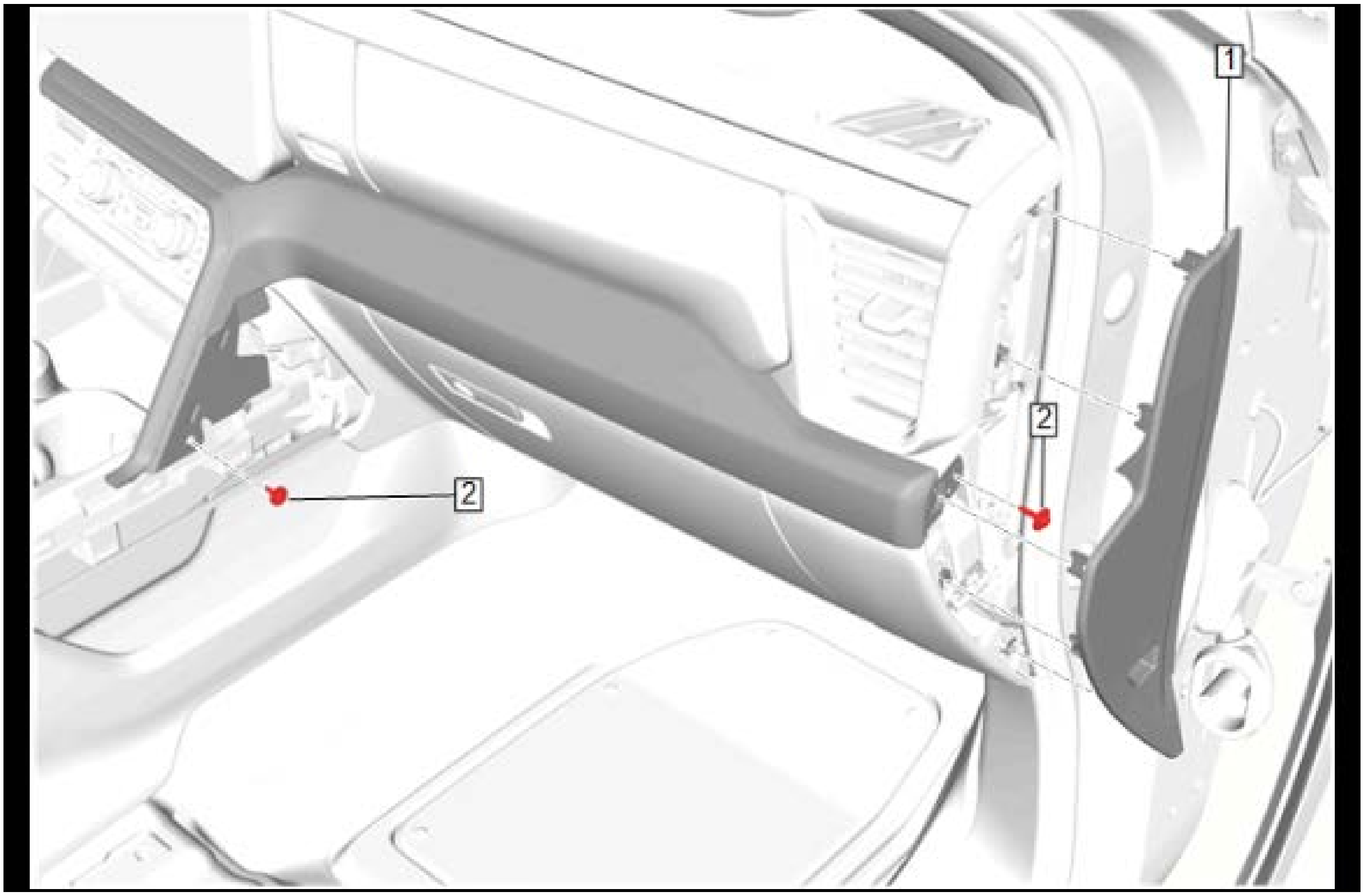


11. Instrument Panel Trim Pad - Right Side (1) » Install

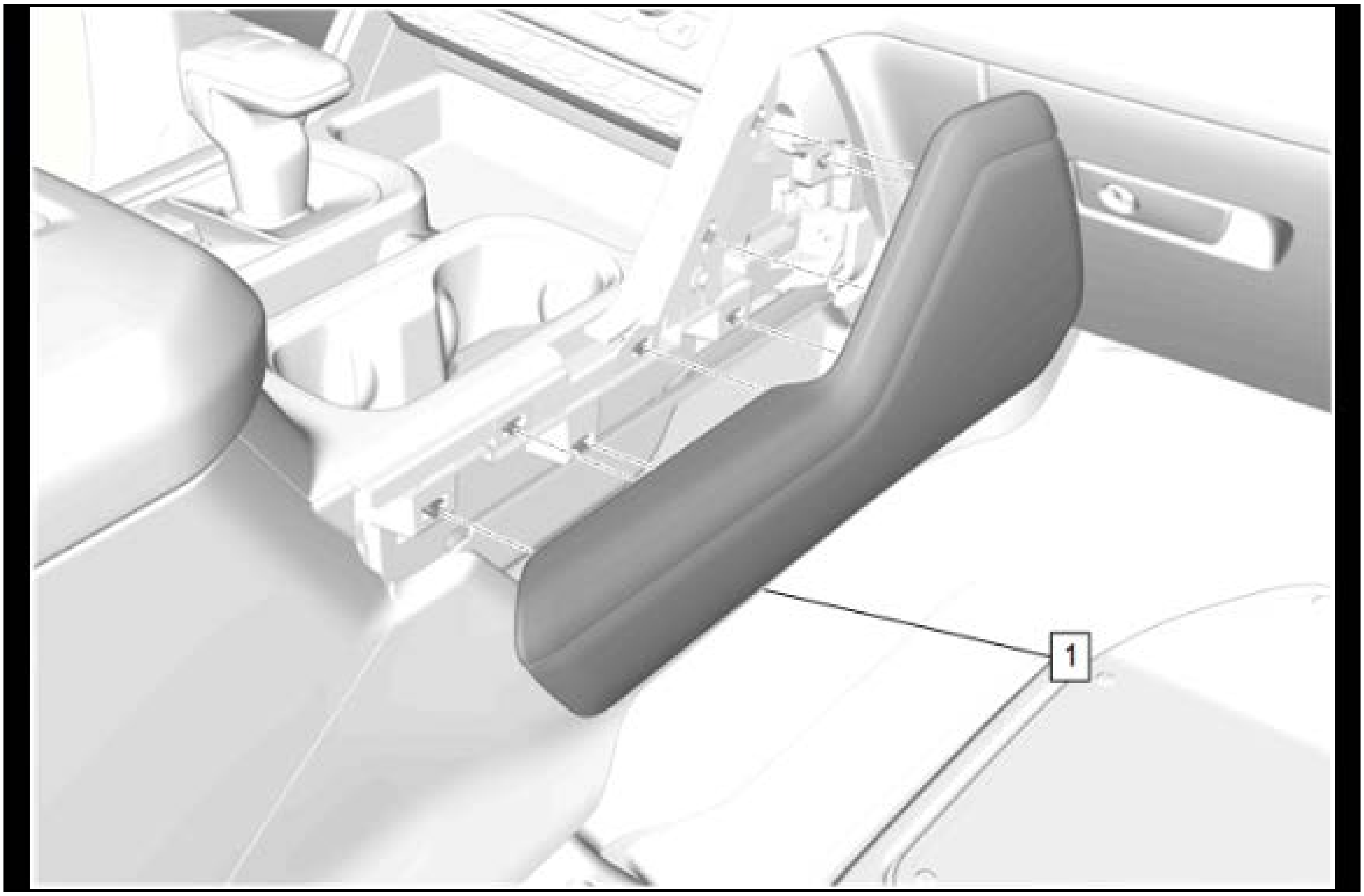


5902525

12. Instrument Panel Lower Trim Panel Outer Filler (2) » Install
13. Instrument Panel Lower Trim Panel Outer Filler Bolt (1) » Install and tighten [2x]



14. Instrument Panel Trim Pad Bolt (2) » Install and tighten [2x]
15. Instrument Panel Fuse Block Access Hole Cover (1) » Install



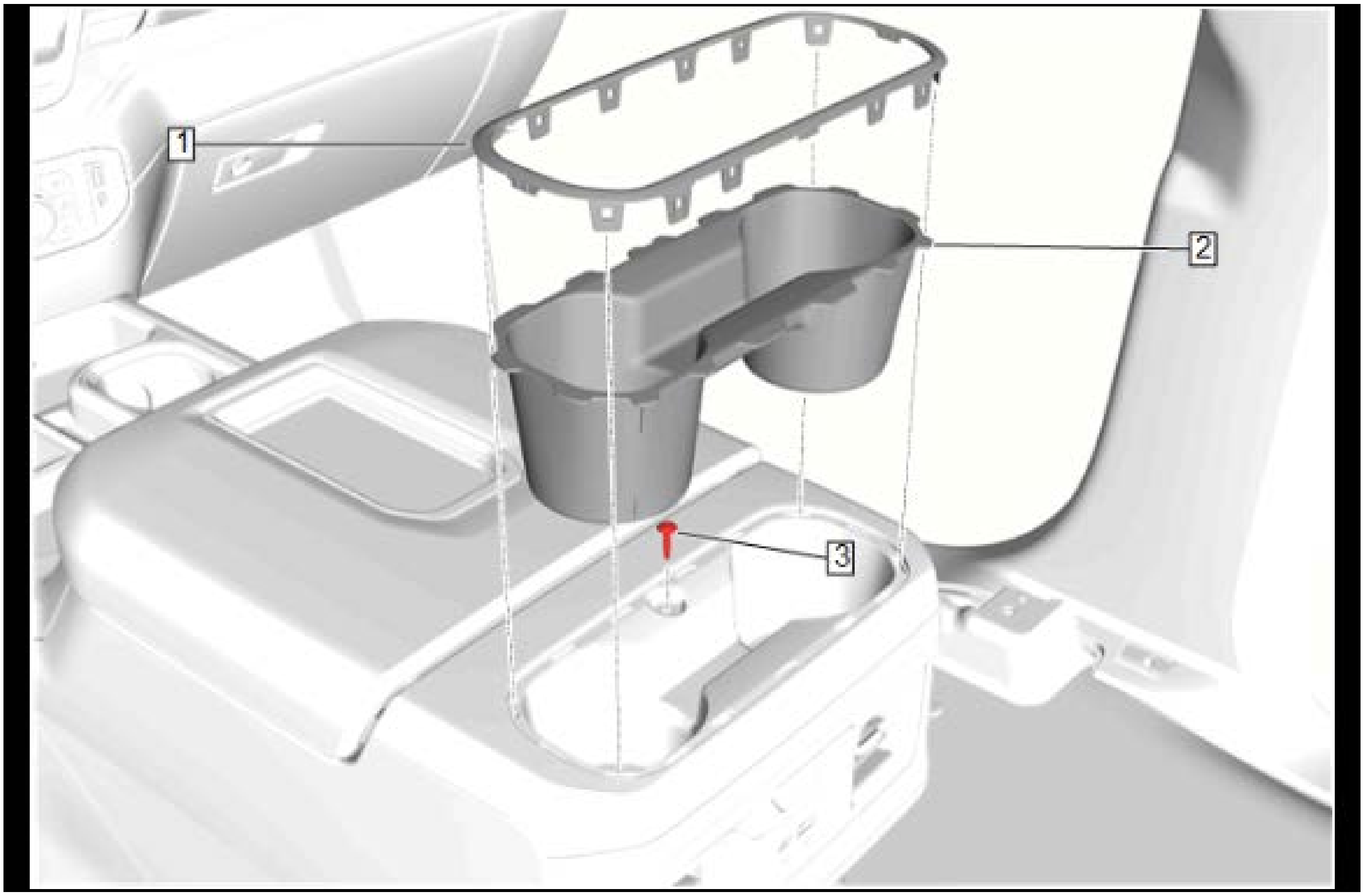
5912622

16. Front Floor Console Lower Applique - Right Side
    (1) » Install

Low Frequency Console Number 2 Antenna Replacement

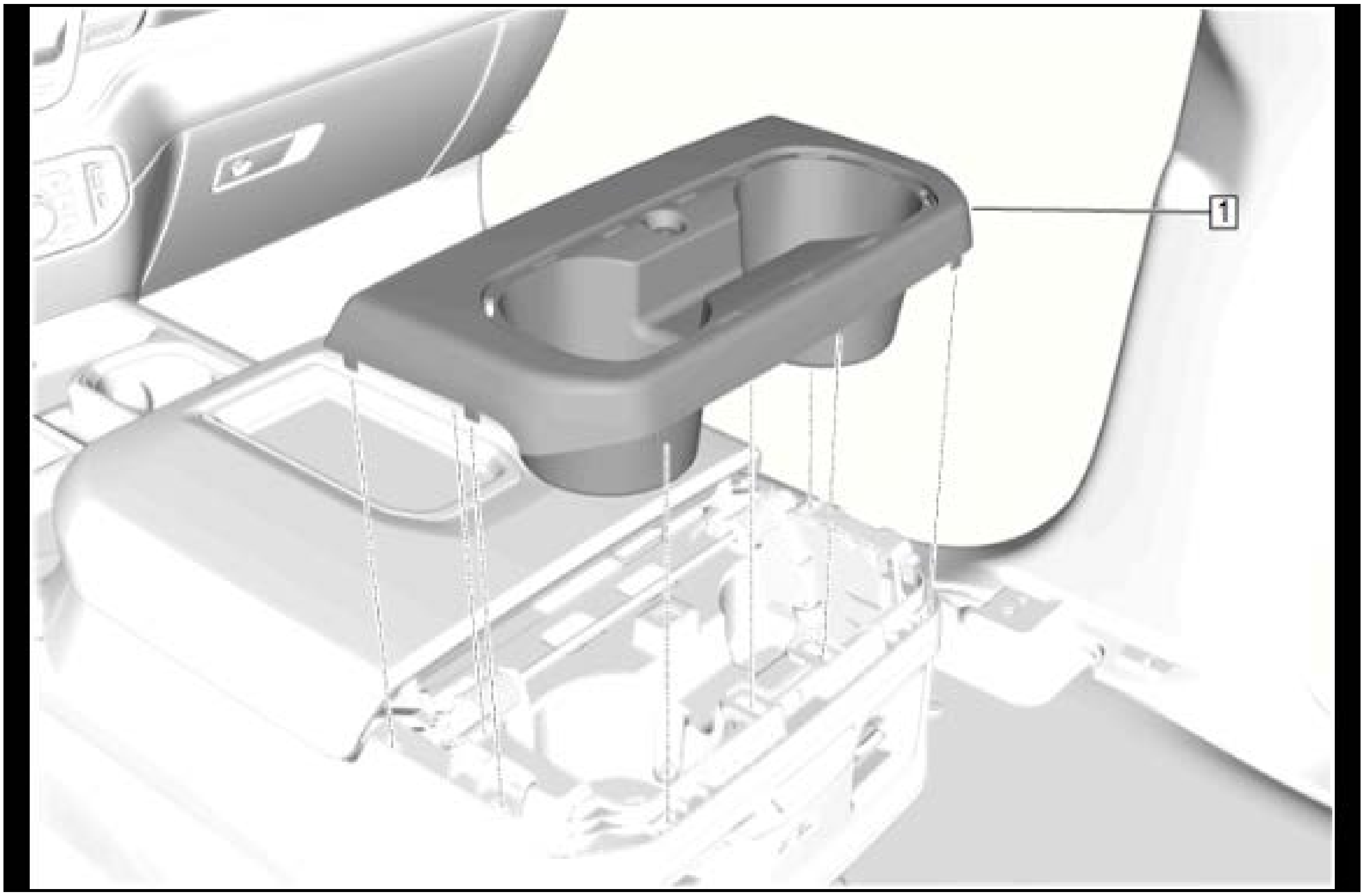
Object-ID=5903236 Owner=Kowalski, Kamil LMD=27-Jan-2022 LMB=Kowalski, Kamil

Removal Procedure

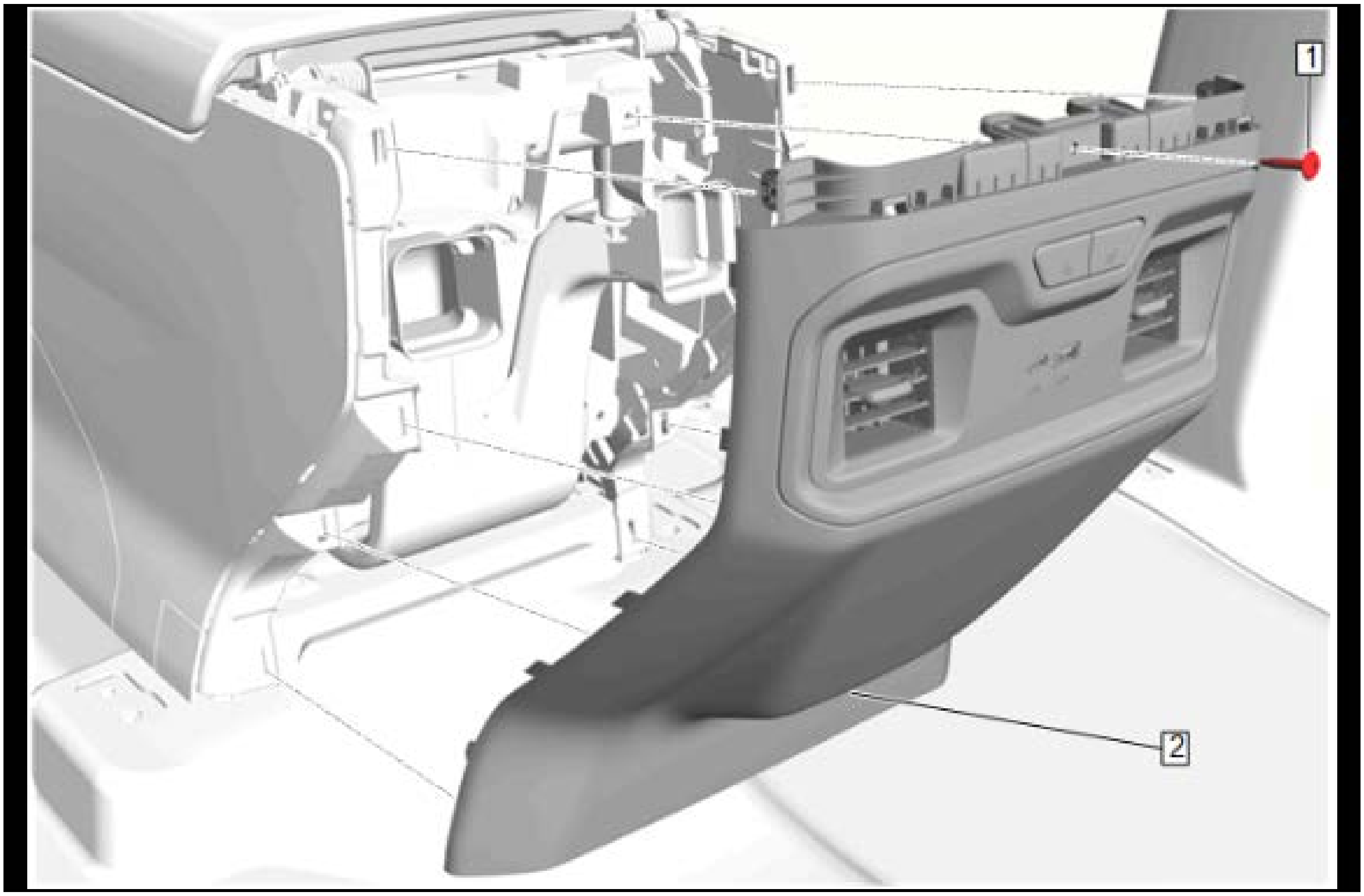


5905669

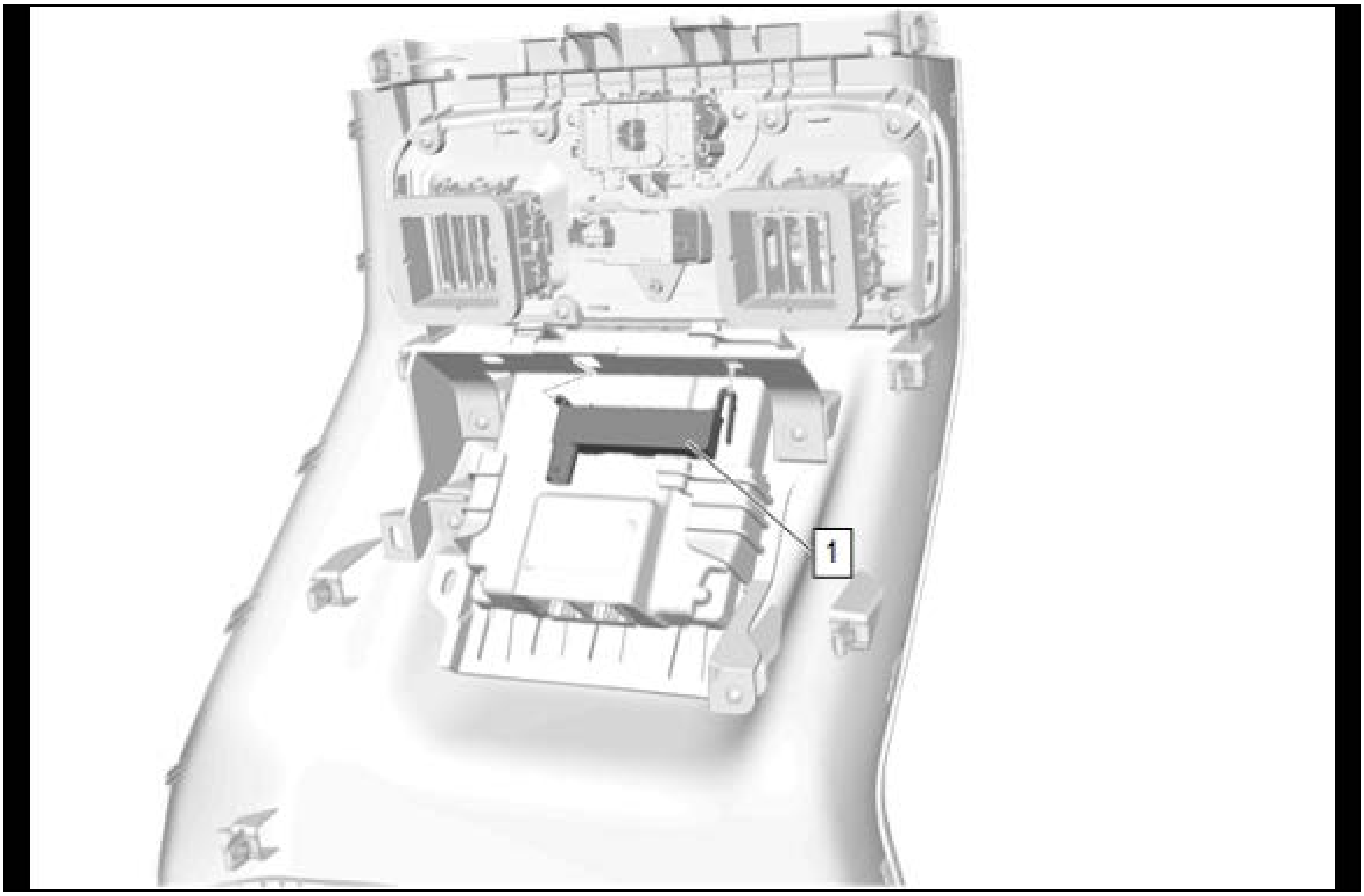
1. Using a suitable plastic trim tool, release the retaining tabs.
2. Front Floor Console Cup Holder Opening Trim Plate (1) » Remove
3. Front Floor Console Rear Cup Holder Liner (2) » Remove
4. Front Floor Console Cup Holder Bolt (3) » Remove



5. Using a flat-bladed plastic trim tool, release the retaining clips.
6. Front Floor Console Rear Cup Holder (1) » Remove



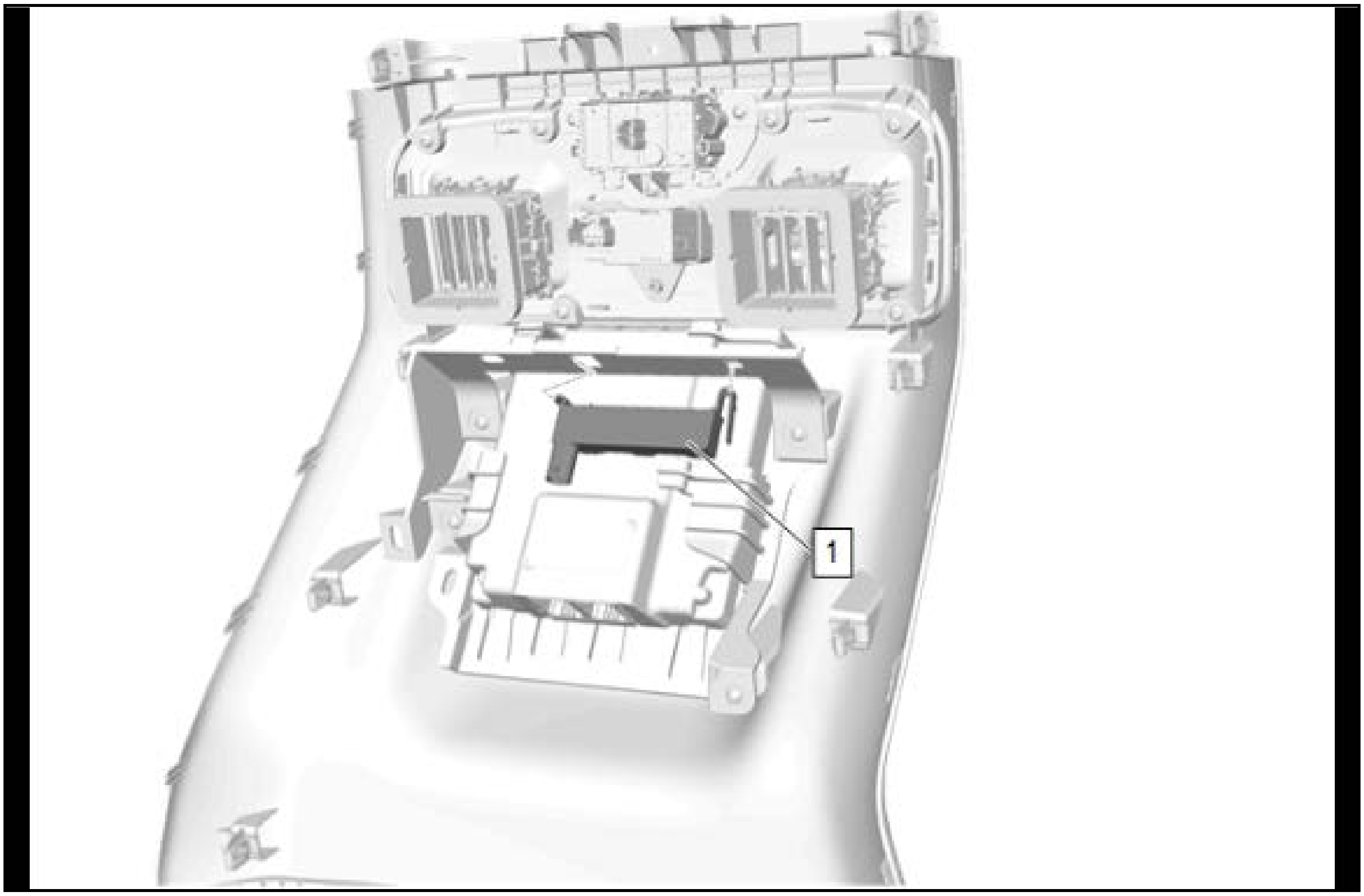
7. Front Floor Console Rear Cover Bolt (1) » Remove
8. Using a flat-bladed plastic trim tool, release the retaining clips.
9. Reposition the component to access the electrical connectors.
10. Disconnect the electrical connectors and release the wiring harness retainers as necessary.
11. Front Floor Console Rear Trim Panel (2) » Remove



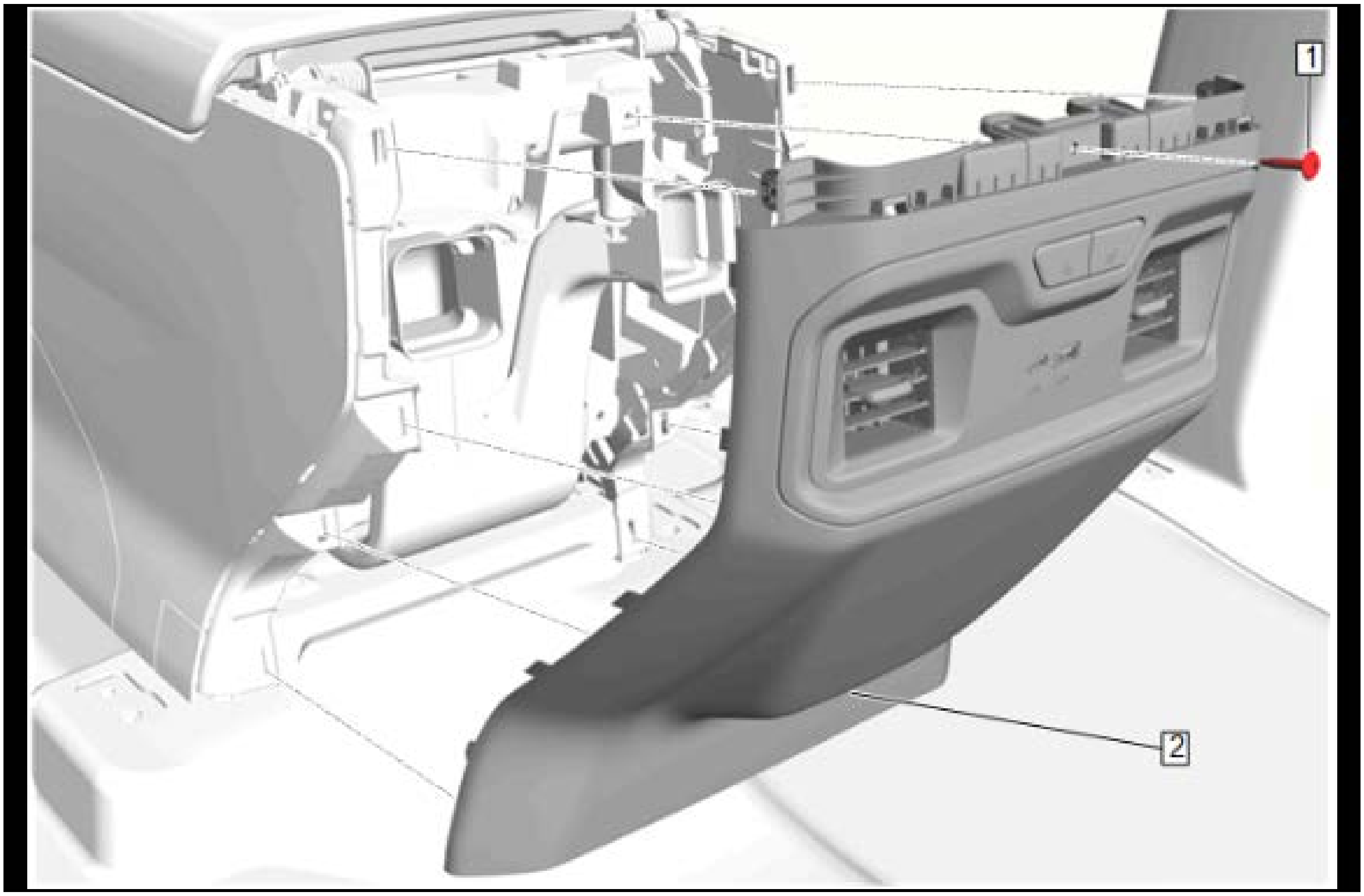
5903233

12. Release the retaining tab.
13. Low Frequency Console Number 2 Antenna (1) » Remove

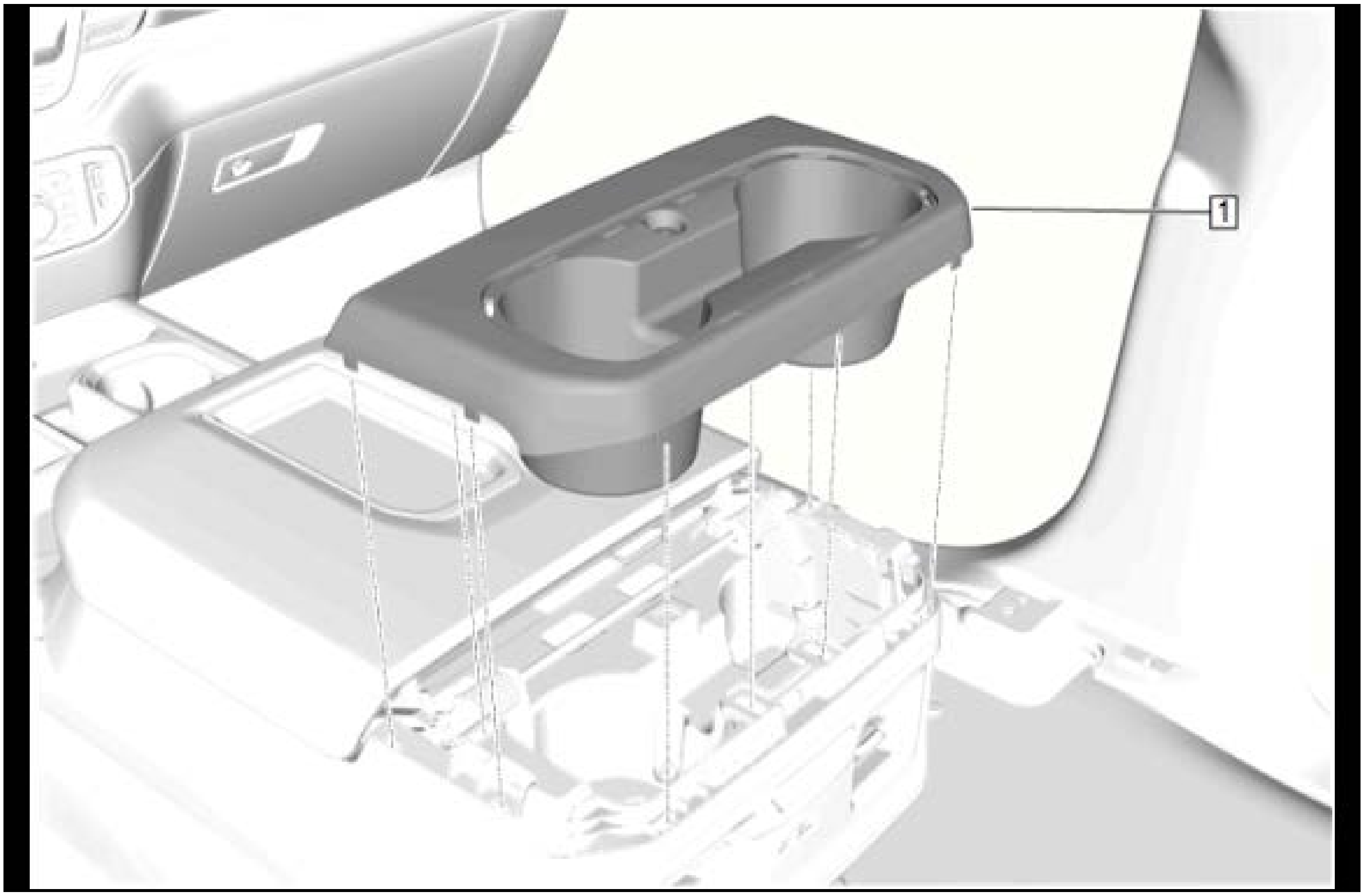
Installation Procedure



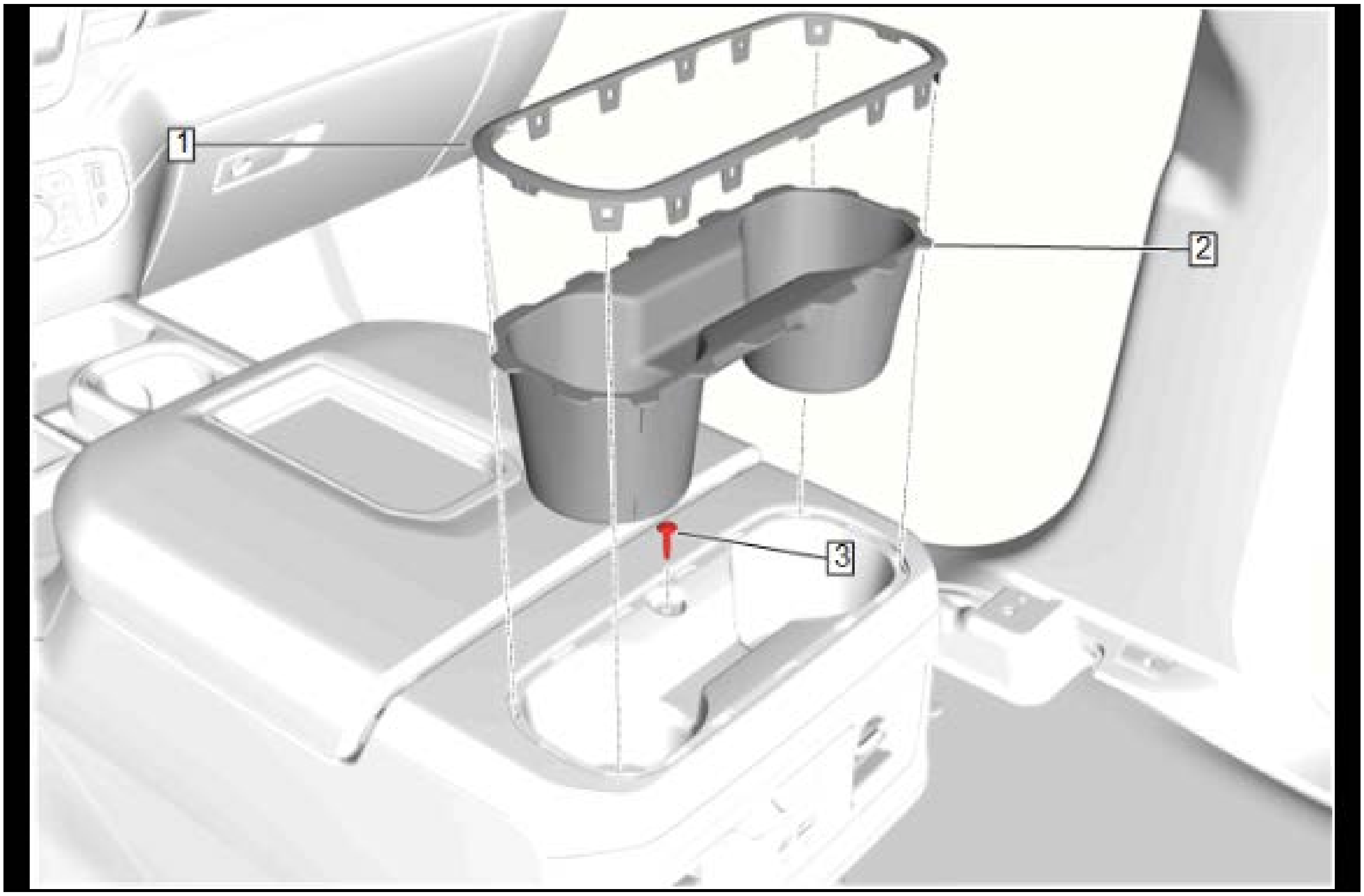
1. Low Frequency Console Number 2 Antenna (1) » Install
2. Secure the retaining tab.



3. Connect the electrical connectors and install the wiring harness retainers as necessary.
4. Front Floor Console Rear Trim Panel (2) » Install
5. Front Floor Console Rear Cover Bolt (1) » Install and tighten



6. Front Floor Console Rear Cup Holder (1) » Install



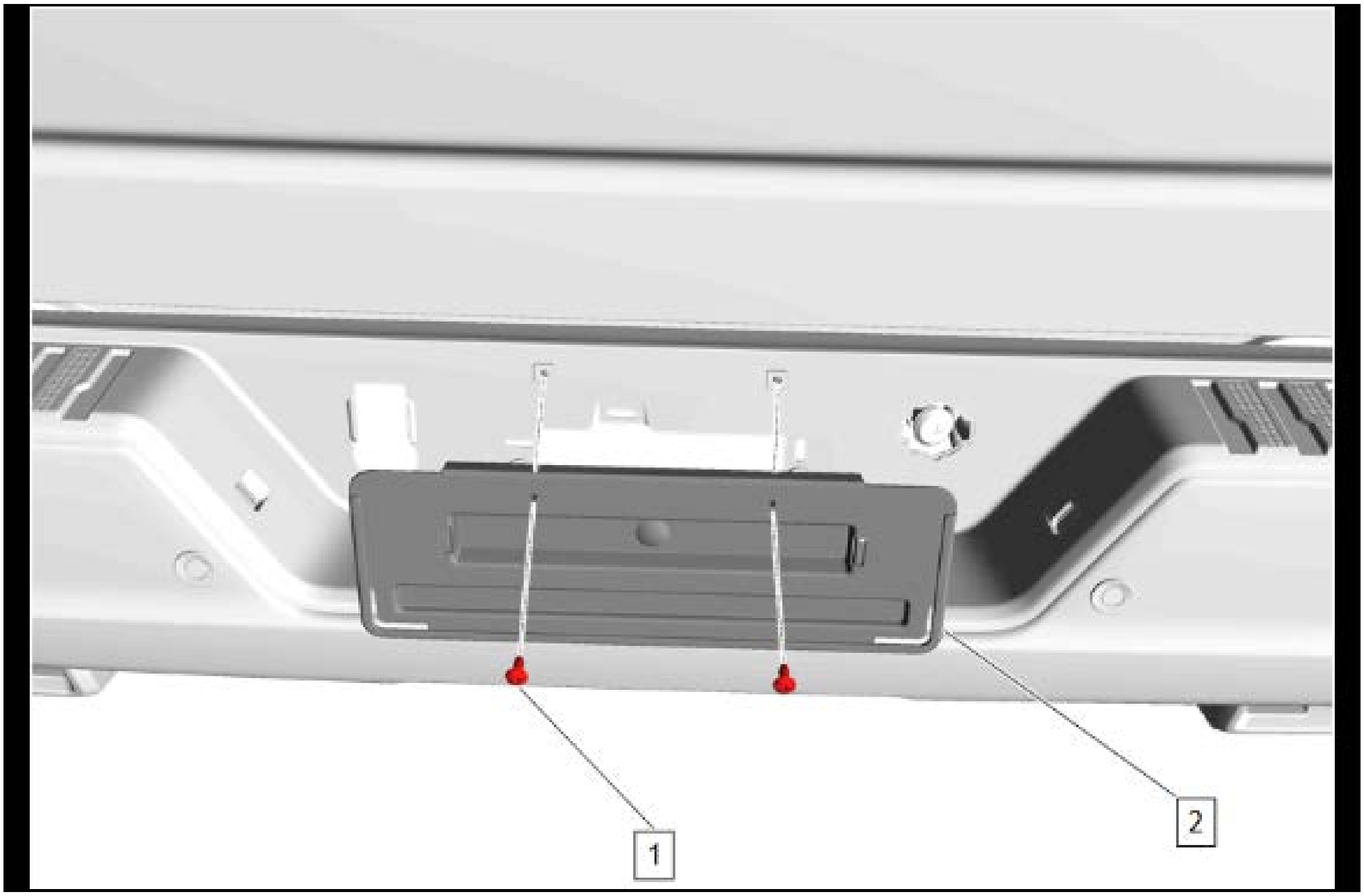
5905669

7. Front Floor Console Cup Holder Bolt (3) » Install and tighten
8. Front Floor Console Rear Cup Holder Liner (2) » Install
9. Front Floor Console Cup Holder Opening Trim Plate (1) » Install

Low Frequency Rear Bumper Antenna Replacement

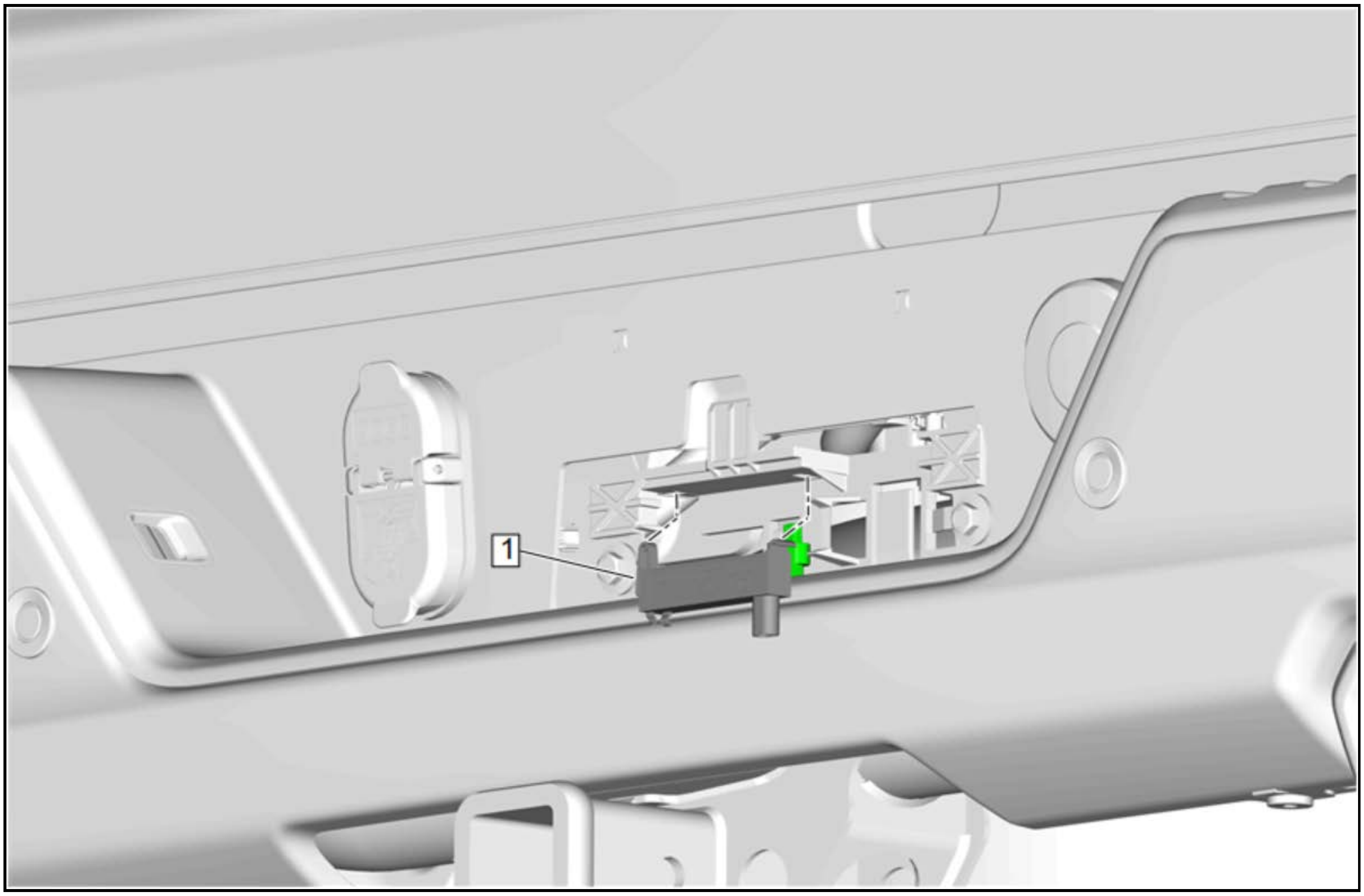
Object-ID=5635626 Owner=Momber, Matthew LMD=15-Sep-2020 LMB=McMillan, Tim

Removal Procedure



5635683

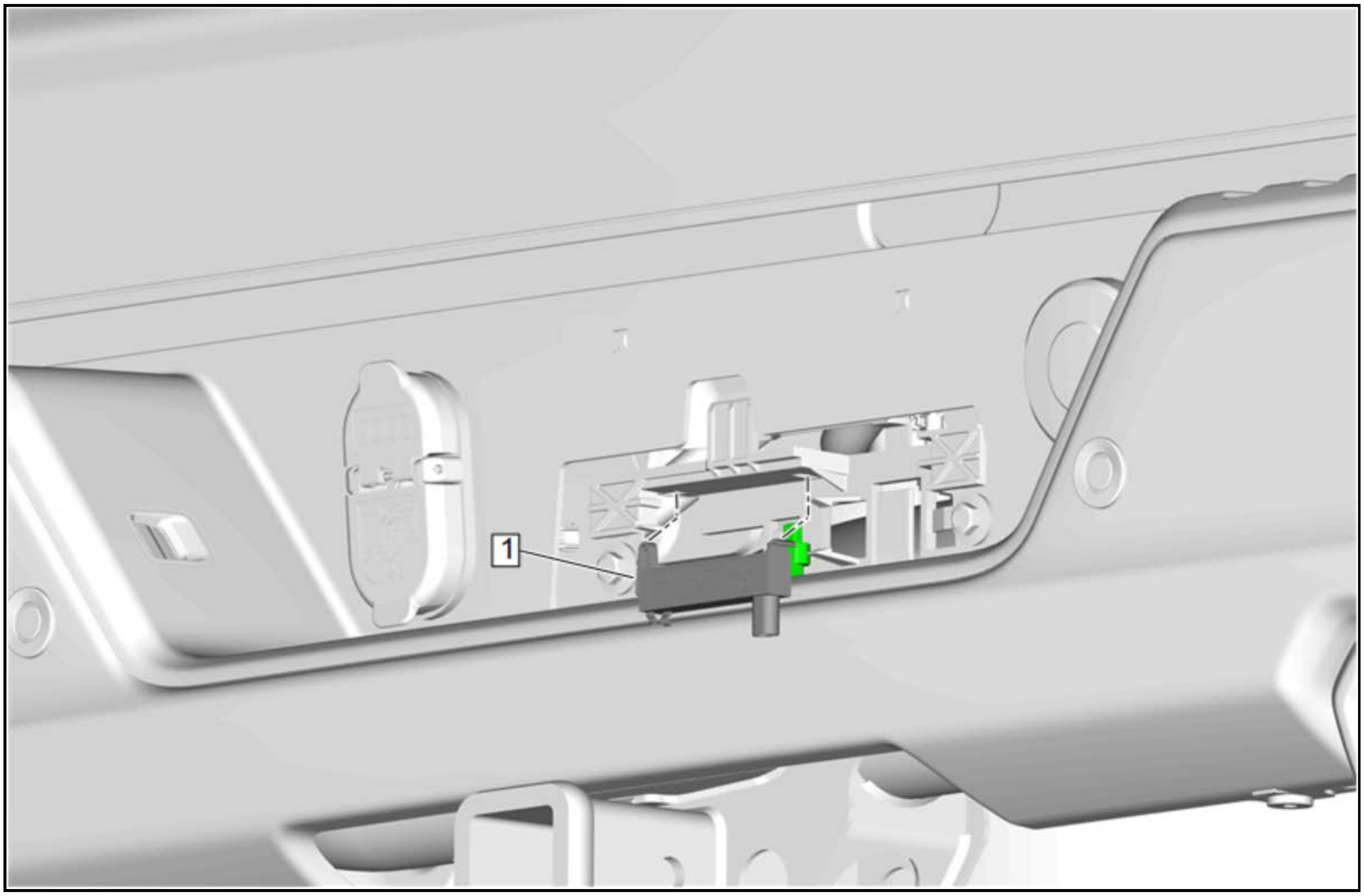
1. Rear License Plate Bolt (1) » Remove [2x]
2. License Plate (2) » Remove



5038785

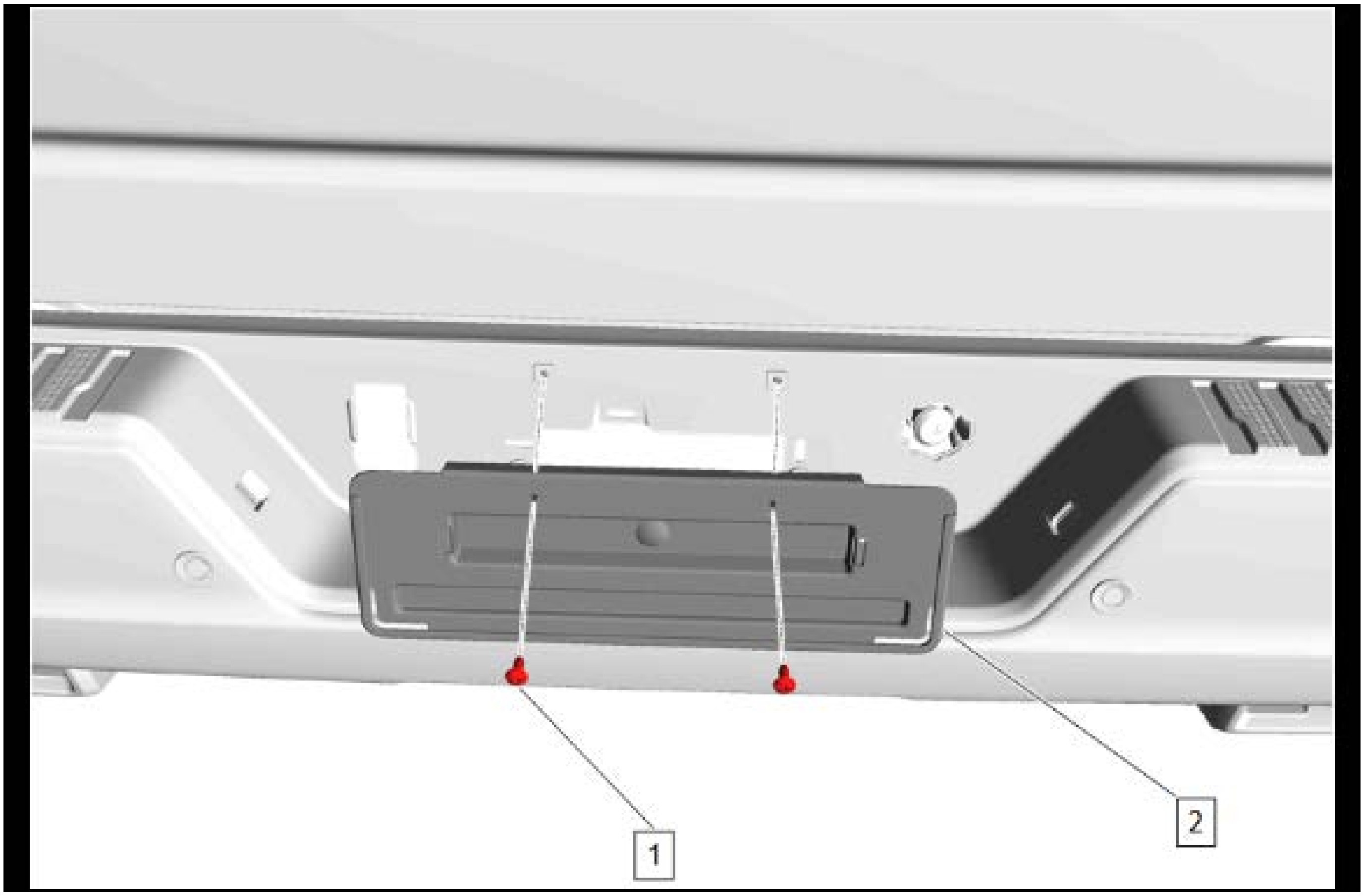
3. Disconnect the electrical connector.
4. Release the retaining tab.
5. Low Frequency Rear Bumper Antenna (1) » Remove

Installation Procedure



5038785

1. Low Frequency Rear Bumper Antenna (1) » Install
2. Secure the retaining tab.
3. Connect the electrical connector.



5635683

4. License Plate (2) » Install
5. Rear License Plate Bolt (1) » Install and tighten [2x]

Remote Function Actuator Module Replacement (Crew Cab, Double Cab)

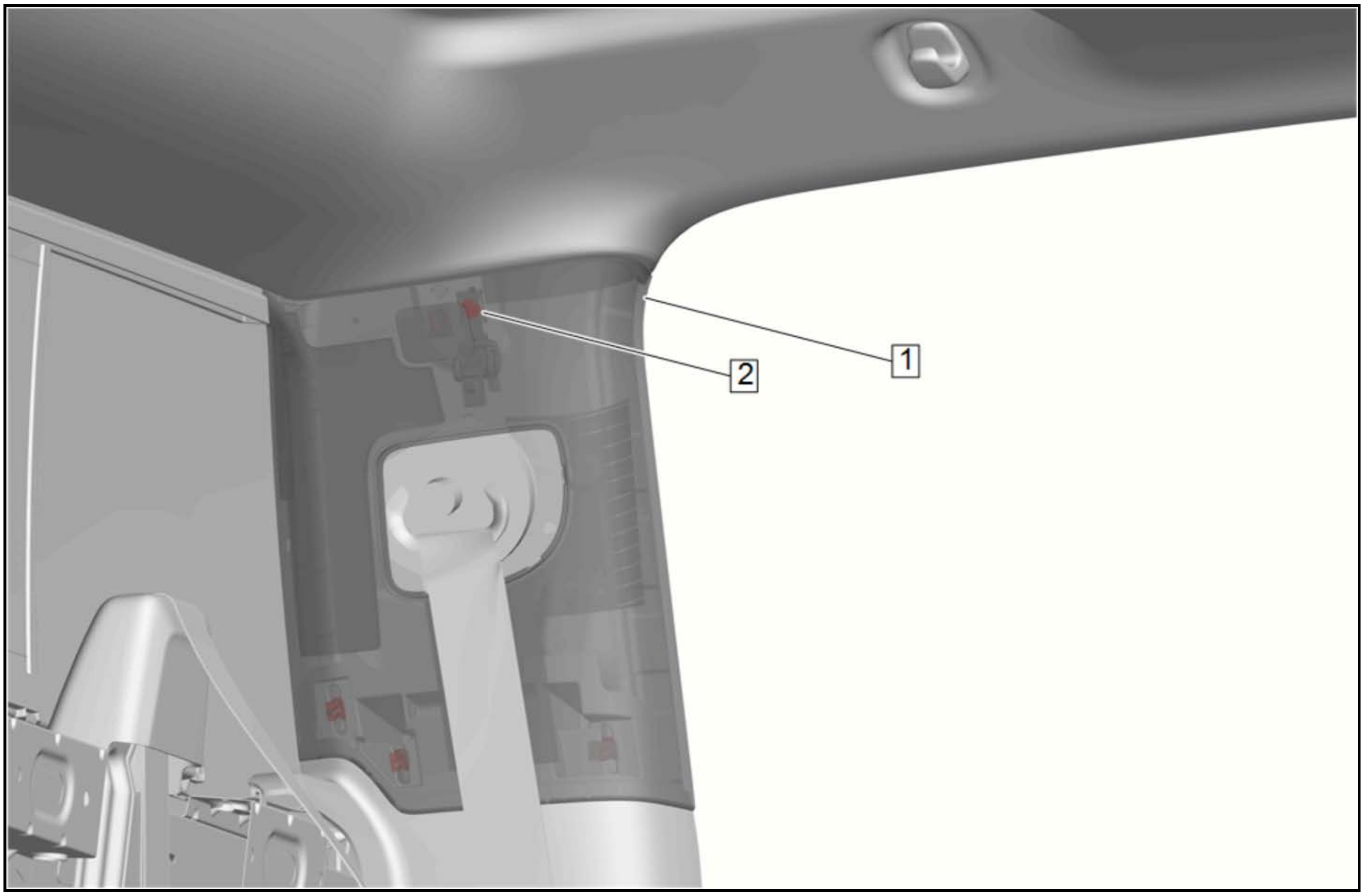
Object-ID=5938459 Owner=Kowalski, Kamil LMD=21-Dec-2021 LMB=Schaller, Dawn

Caution: SIO-ID=2053560 LMD=25-Jan-2008 If a vehicle is equipped with a head curtain inflator module ensure that the inflator module and tether are undamaged.
If tether or curtain airbag are damaged in any way, they must be replaced.

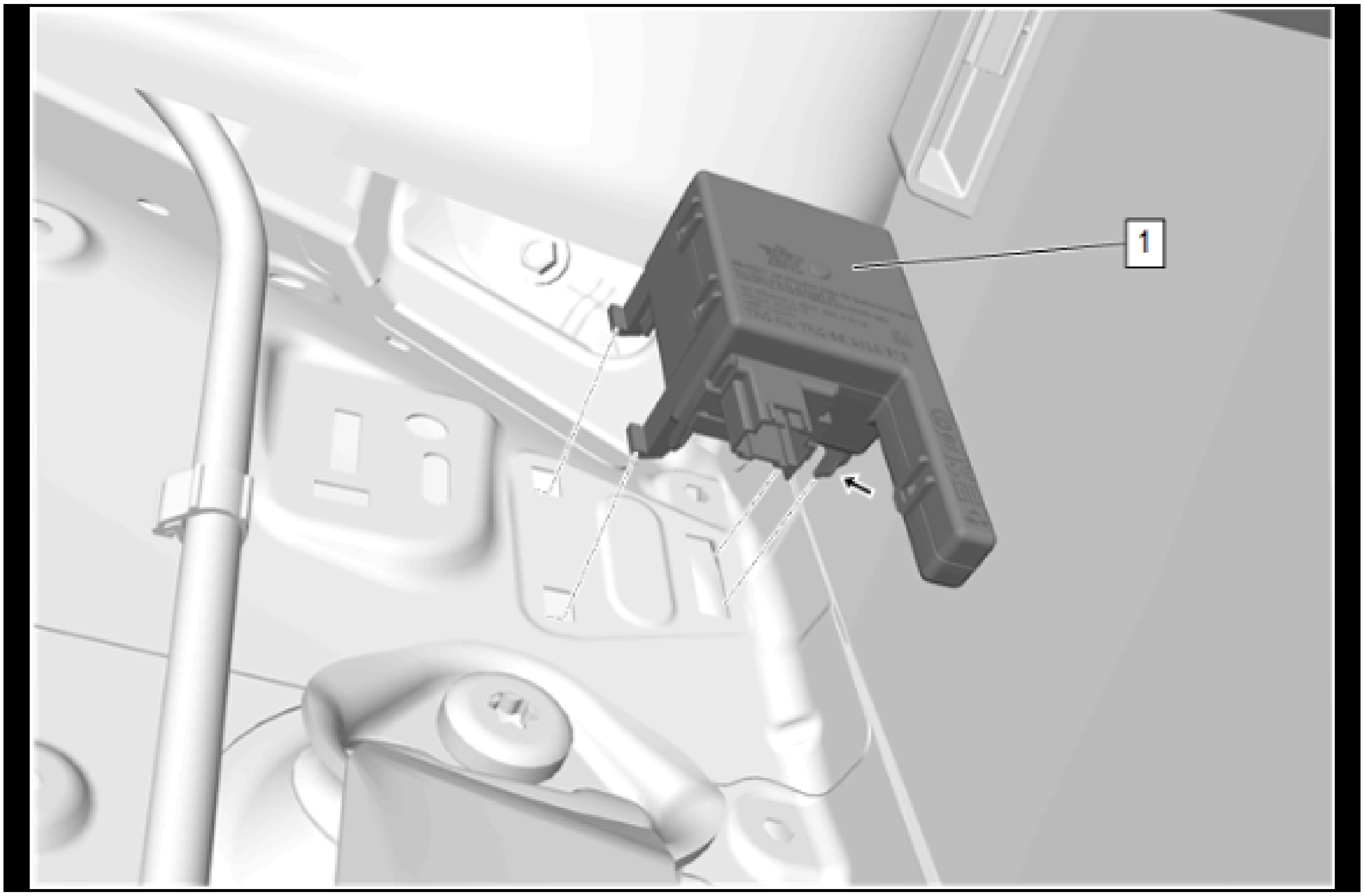
Caution: SIO-ID=2053558 LMD=25-Jan-2008 Use care when working around the head curtain inflator module. Sharp tools may puncture the curtain airbag. If the head curtain inflator module is damaged in any way, it must be replaced.

Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*



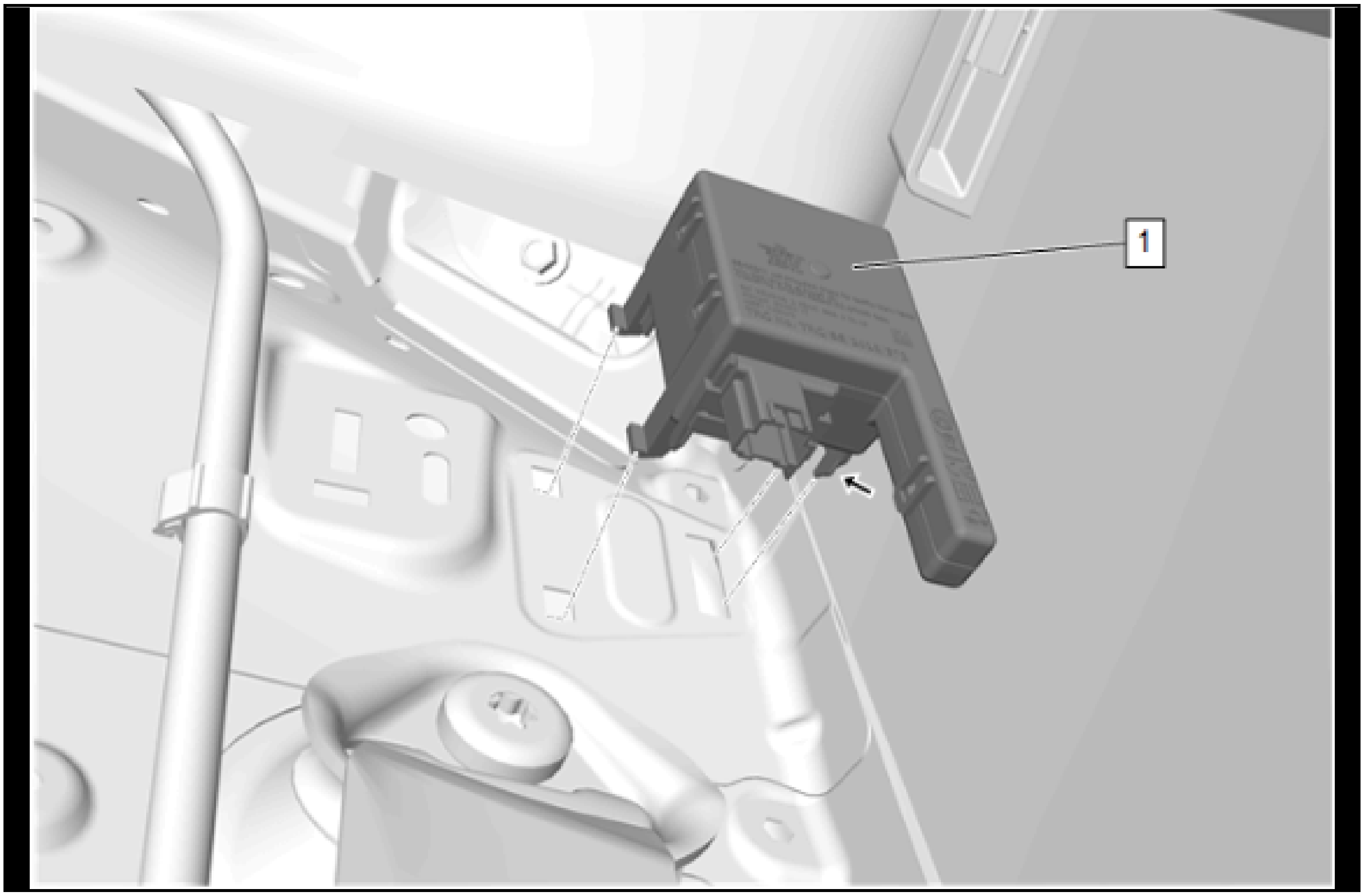
2. Pull the body side rear window garnish molding (1) rearwards to release the tether from the body side inner frame.
3. Access the quarter window trim finish panel bolt (2) which is located on the backside of the rear window garnish molding (1) and secures the tether to the body side inner frame.
4. Quarter Window Trim Finish Panel Bolt (2) » Remove
5. Body Side Rear Window Garnish Molding - Right Side (1) » Reposition



5938190

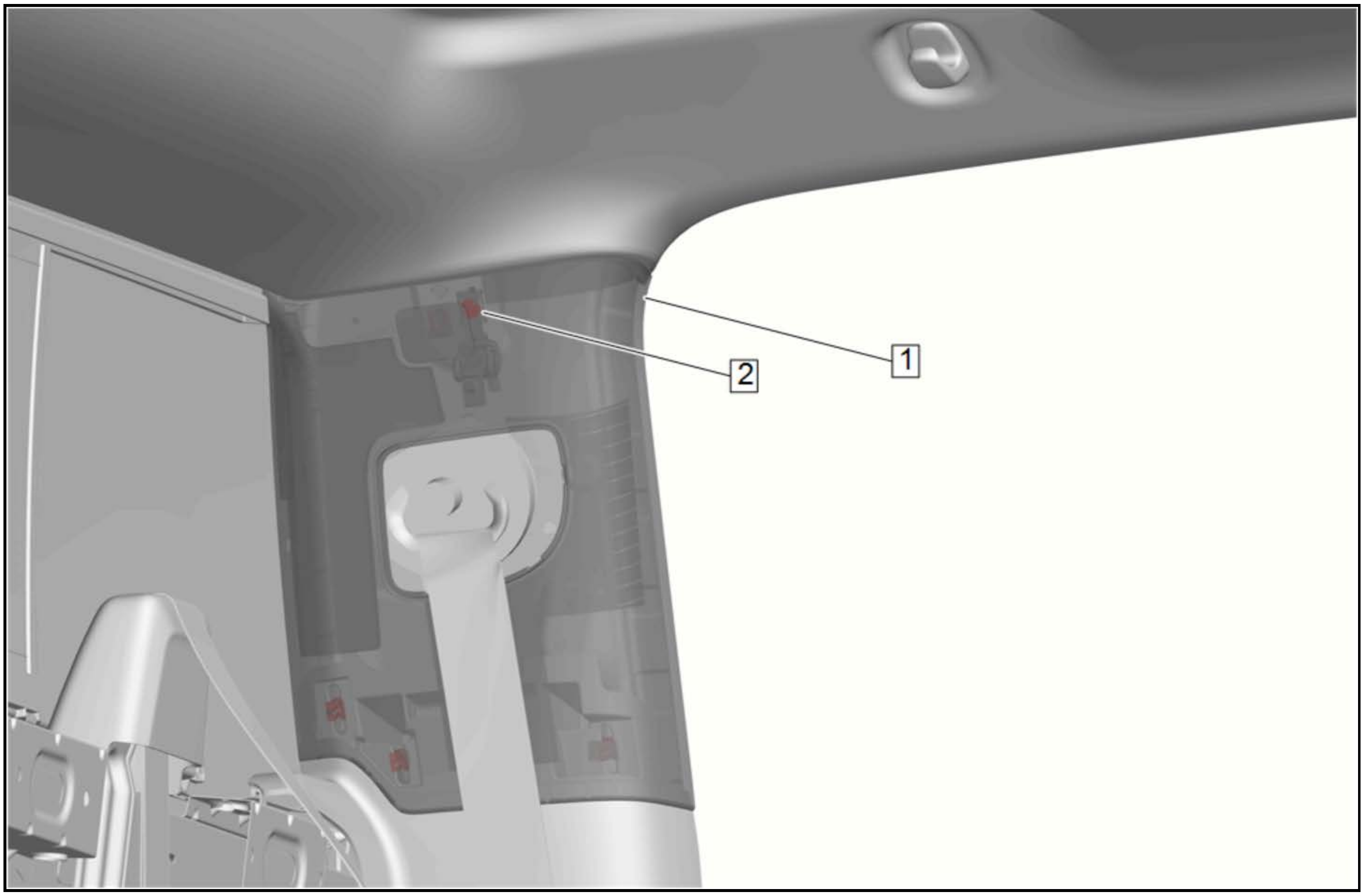
6. Disconnect the electrical connector.
7. Release the retaining tabs.
8. Remote Function Actuator Module (1) » Remove

Installation Procedure



5938190

1. Remote Function Actuator Module (1) » Install
2. Secure the retaining tabs.
3. Connect the electrical connector.



5027777

4. Quarter Window Trim Finish Panel Bolt (2) » Install and tighten
5. Body Side Rear Window Garnish Molding - Right Side (1) » Install
6. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

Remote Function Actuator Module Replacement (Regular Cab)

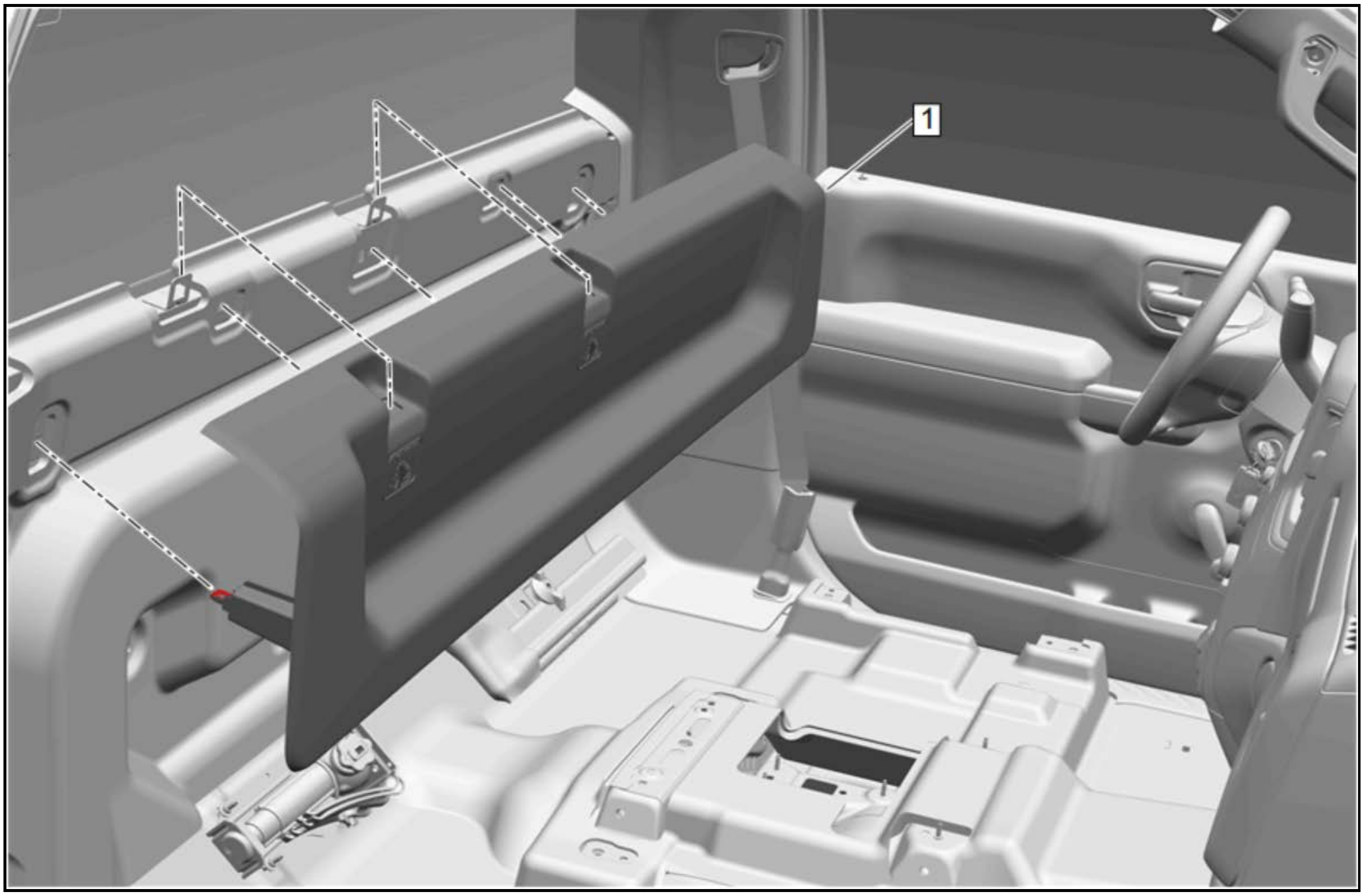
Object-ID=6213287 Owner=Cameli, Jordan LMD=09-Dec-2022 LMB=Schaller, Dawn

Caution: SIO-ID=2053560 LMD=25-Jan-2008 If a vehicle is equipped with a head curtain inflator module ensure that the inflator module and tether are undamaged. If tether or curtain airbag are damaged in any way, they must be replaced.

Caution: SIO-ID=2053558 LMD=25-Jan-2008 Use care when working around the head curtain inflator module. Sharp tools may puncture the curtain airbag. If the head curtain inflator module is damaged in any way, it must be replaced.

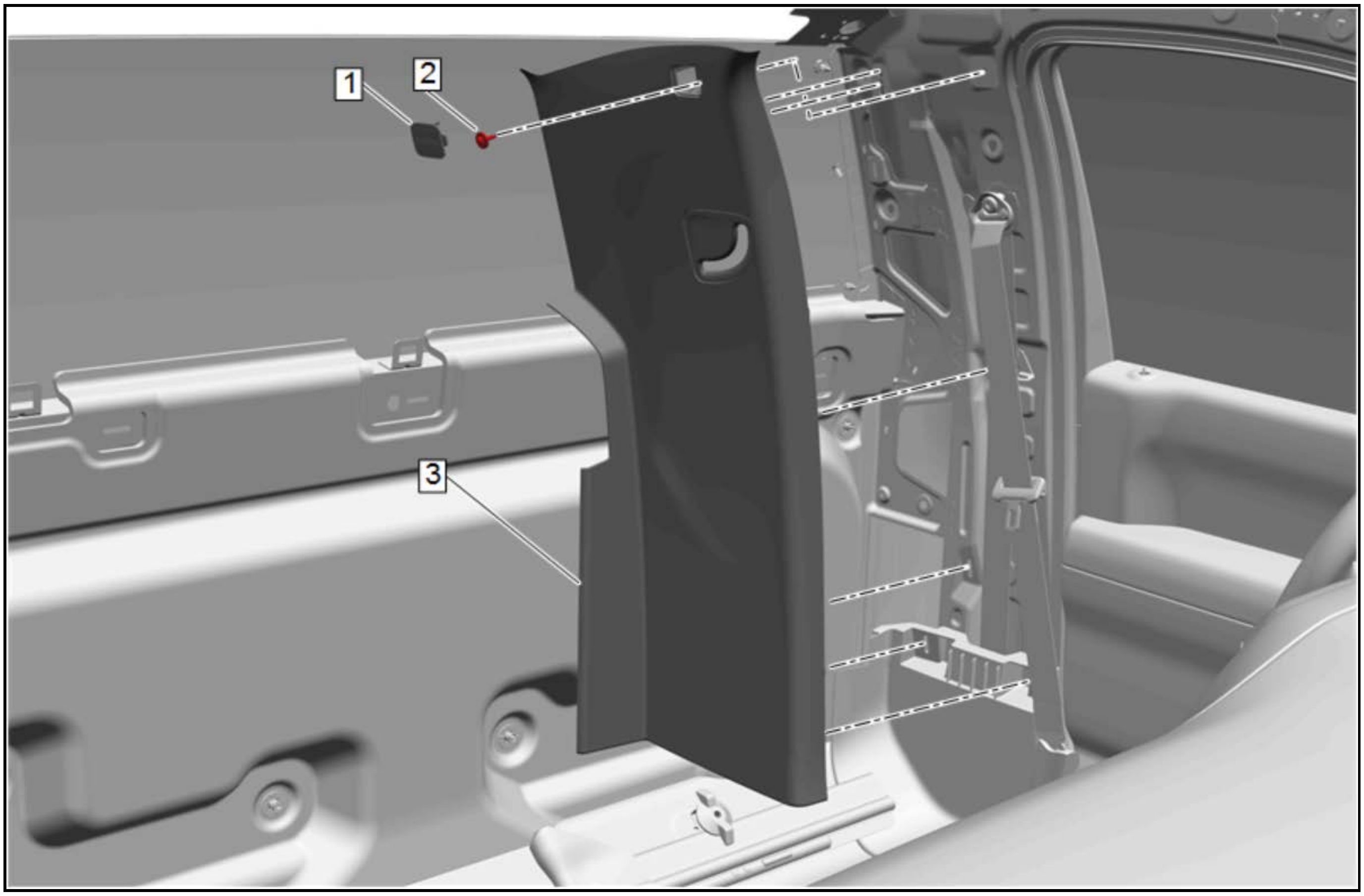
Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*
2. Reposition the front center seat.



5158756

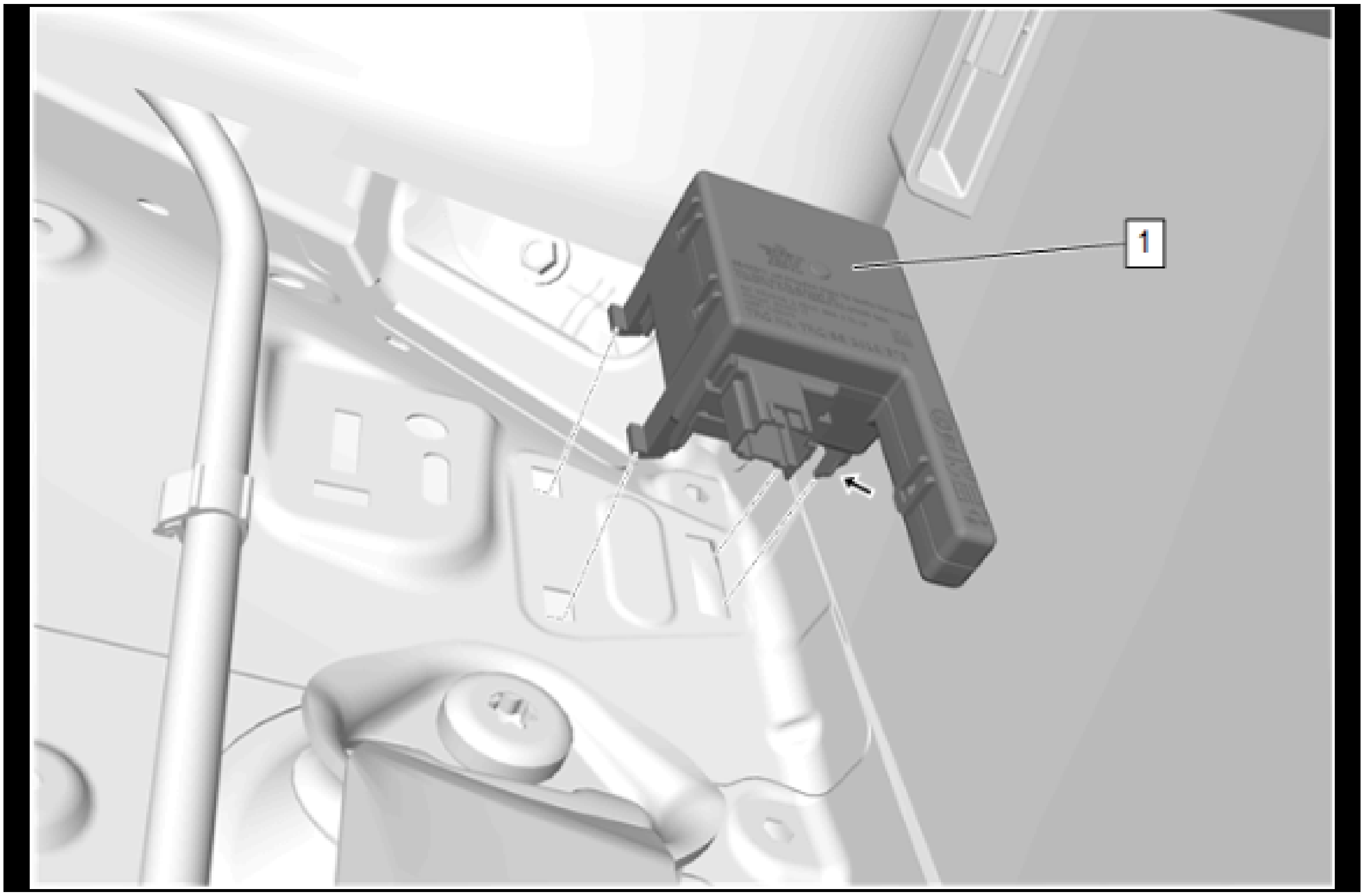
3. Carefully pull the rear window lower garnish molding (1) forward around all edges then the middle of the part to disengage the clips from the sheet metal.
4. After all integral clips are disengaged, lift up and forward to clear the two rear end panel brackets that the rear window lower garnish molding (1) sits over.



5163264

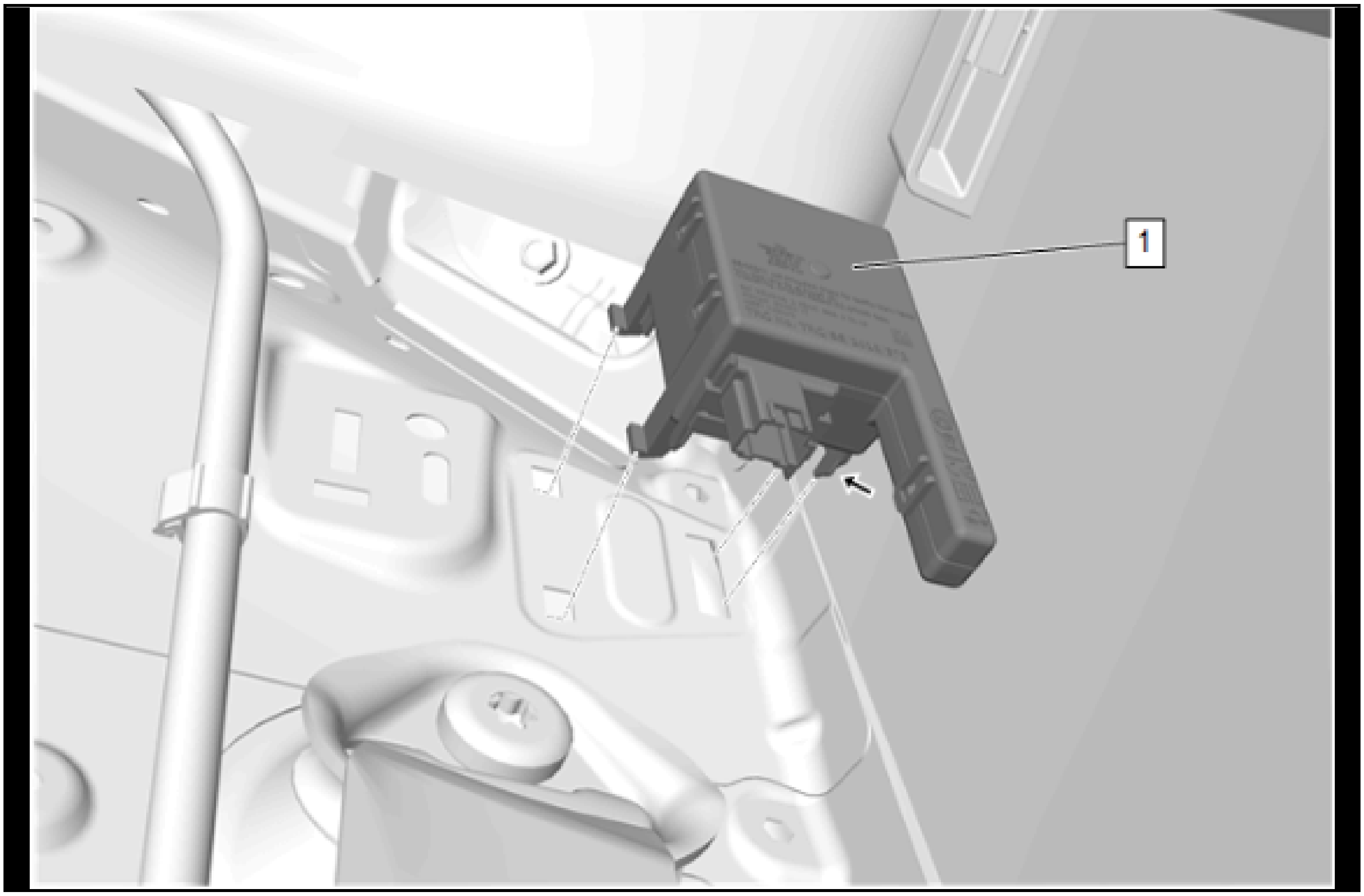
Note: Left side shown, right side similar.

5. Use a small flat bladed tool to open the trim panel bolt cap (1).
6. Body Lock Pillar Garnish Molding Bolt (2) » Remove
7. Starting at the top and working down with a trim tool, grasp the body lock pillar garnish molding (3) and gently pull the panel away from the body to release the retainers.
8. Body Lock Pillar Garnish Molding - Right Side (3) » Reposition



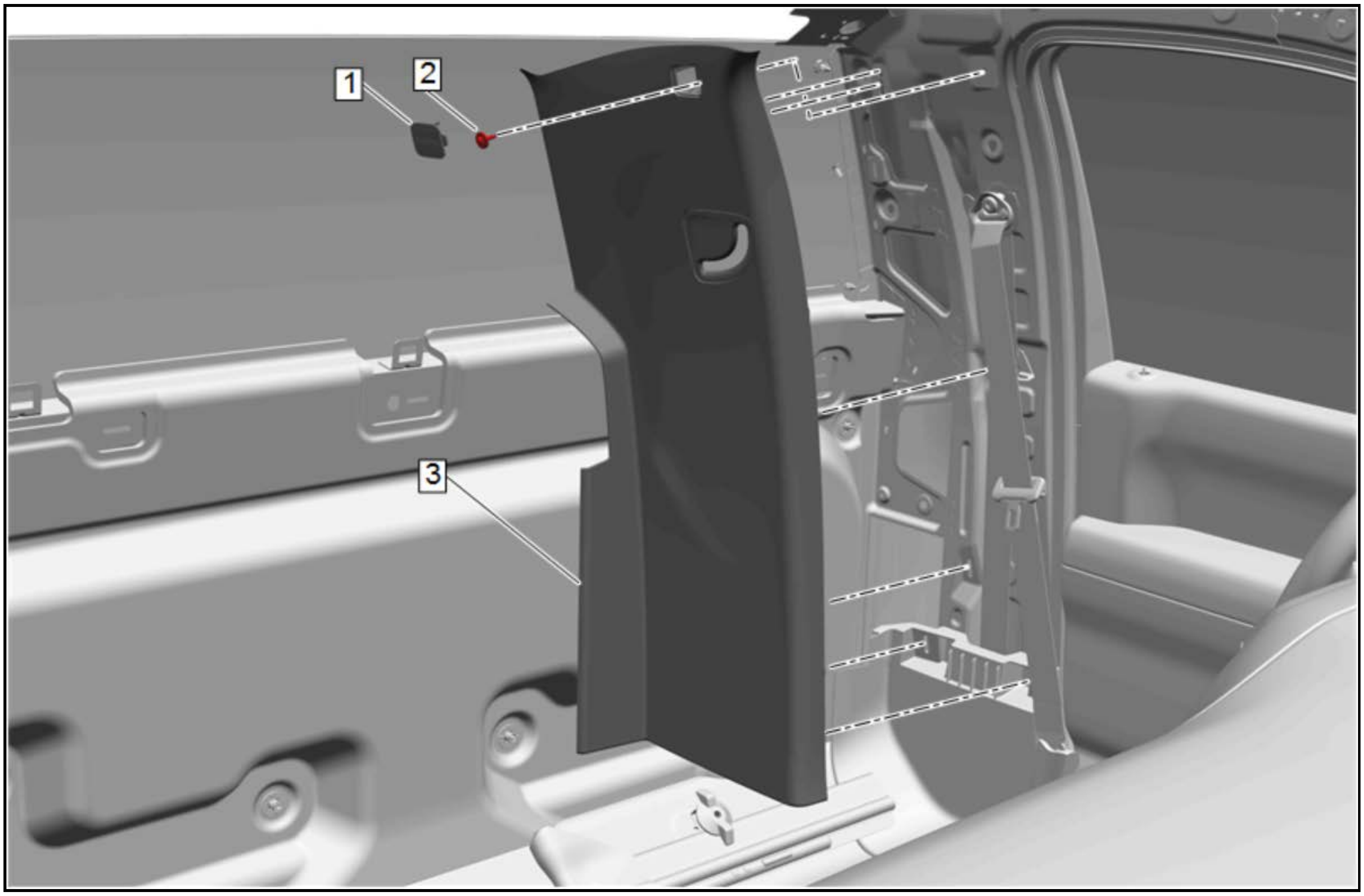
9. Disconnect the electrical connector.
10. Release the retaining tabs.
11. Remote Function Actuator Module (1) » Remove

Installation Procedure

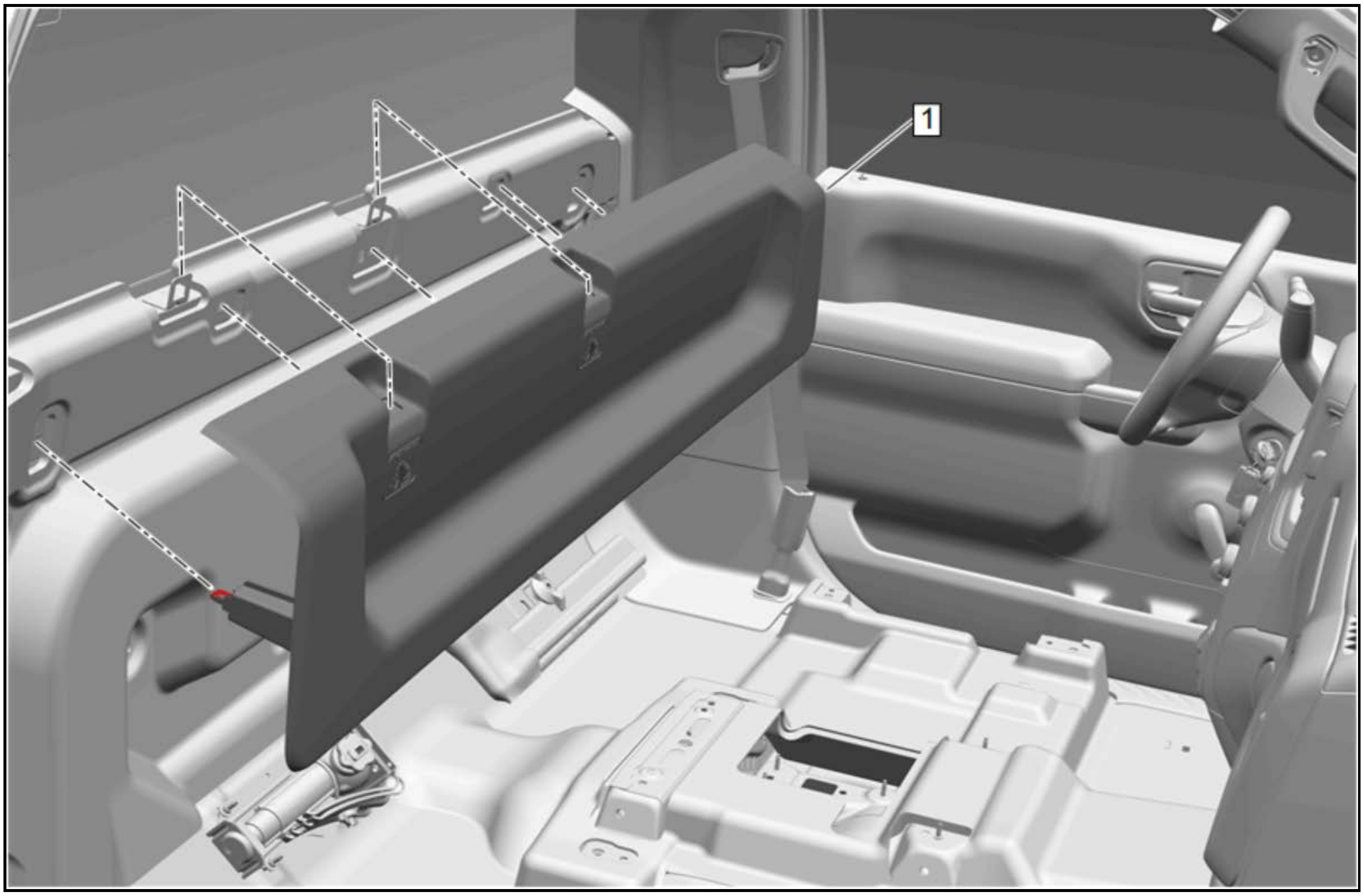


5938190

1. Remote Function Actuator Module (1) » Install
2. Secure the retaining tabs.
3. Connect the electrical connector.



4. Body Lock Pillar Garnish Molding - Right Side (3) » Install
5. Body Lock Pillar Garnish Molding Bolt (2) » Install and tighten
6. Center Pillar Upper Trim Panel Bolt Cap (1) » Install

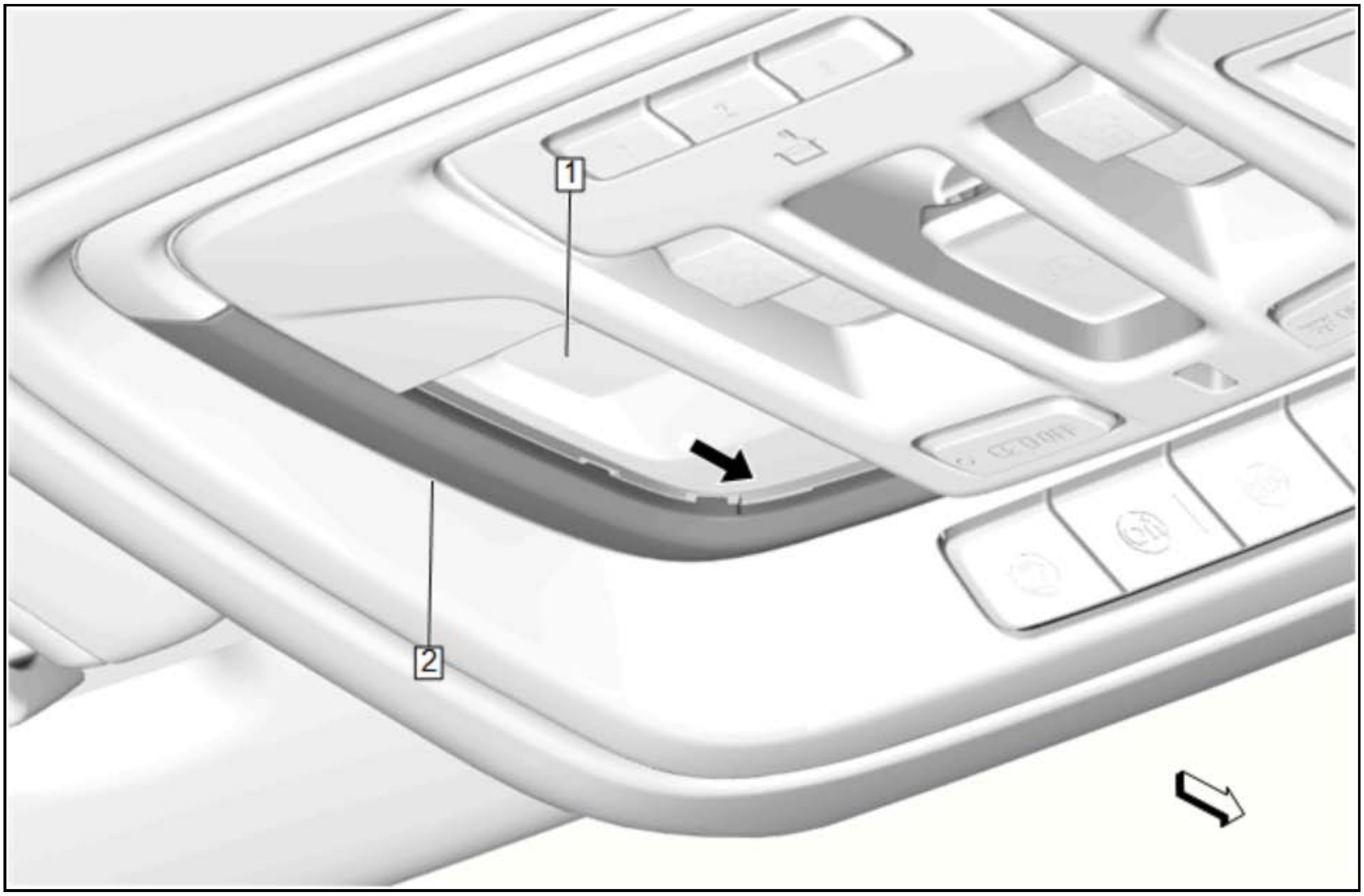


7. Rear Window Lower Garnish Molding (1) » Install
8. Return the seat to its original position.
9. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

Garage Door Opener Transmitter Replacement

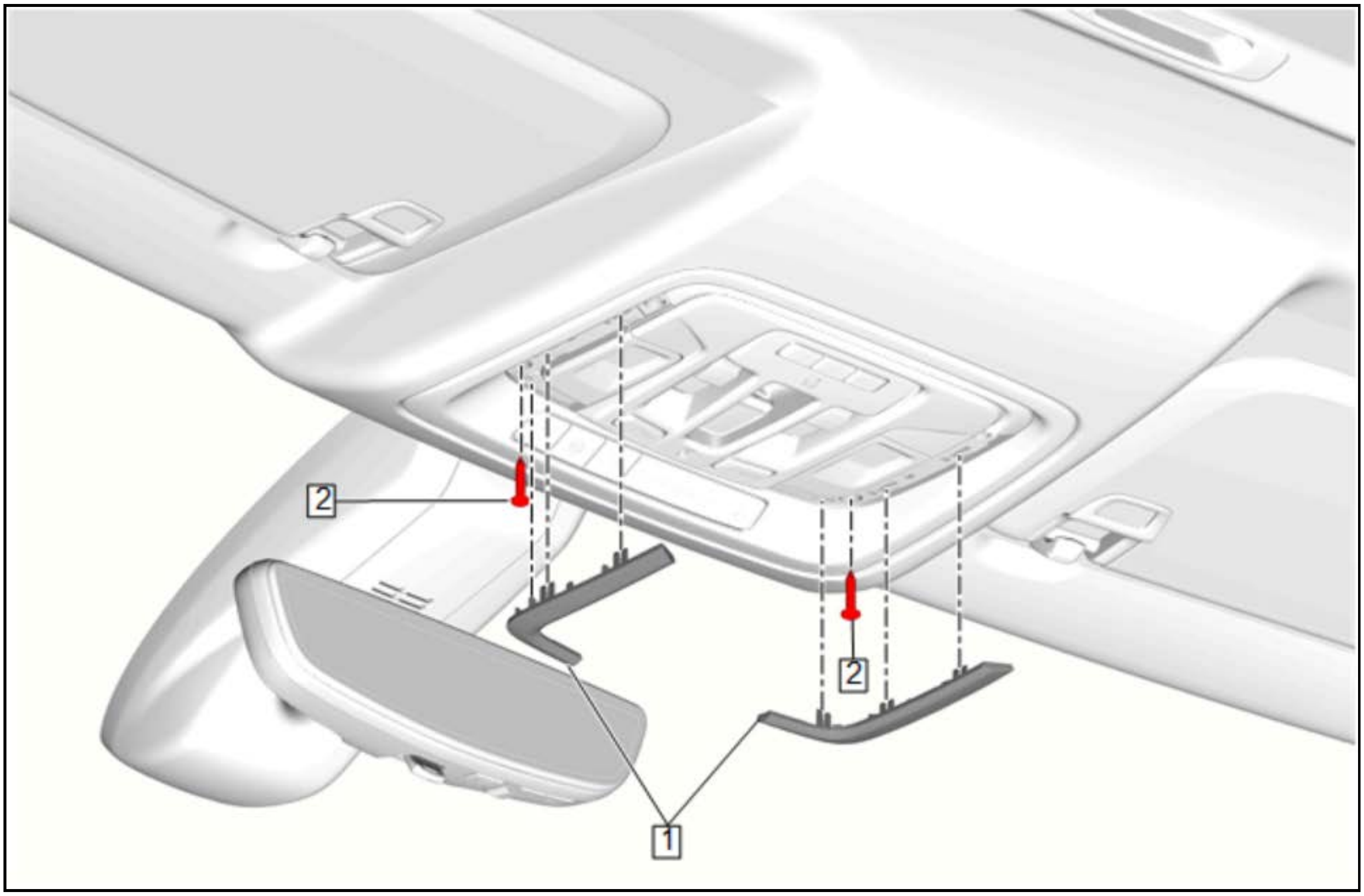
Object-ID=5635824 Owner=Momber, Matthew LMD=10-Feb-2022 LMB=Elliott, William

Removal Procedure



5151168

1. Push in the lamp lens (1) to access the notches on the roof console lamp trim plate (2).
2. Using a plastic trim tool and working your way rearward, release the retainers of the roof console lamp trim plate (2).

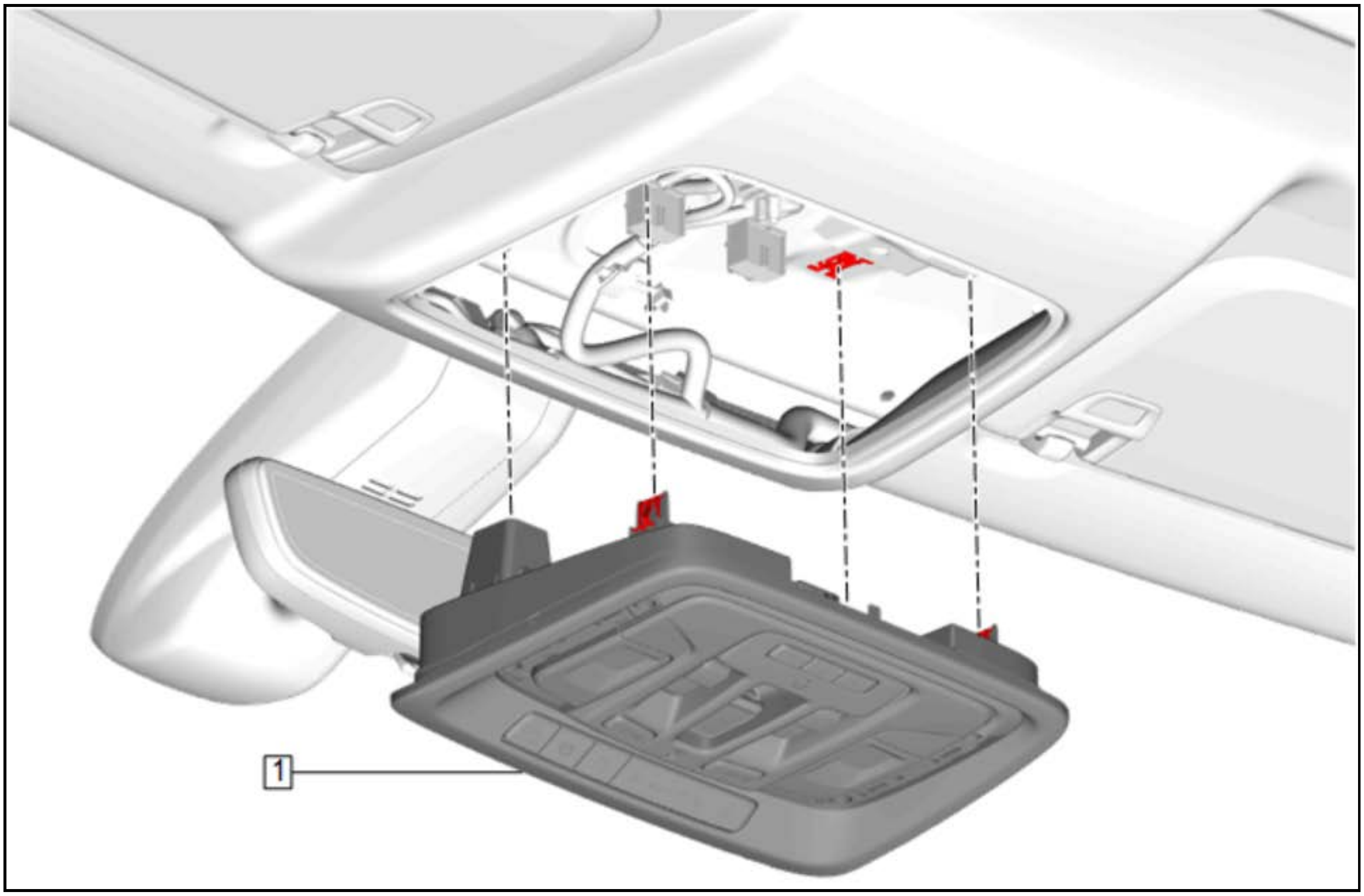


5151170

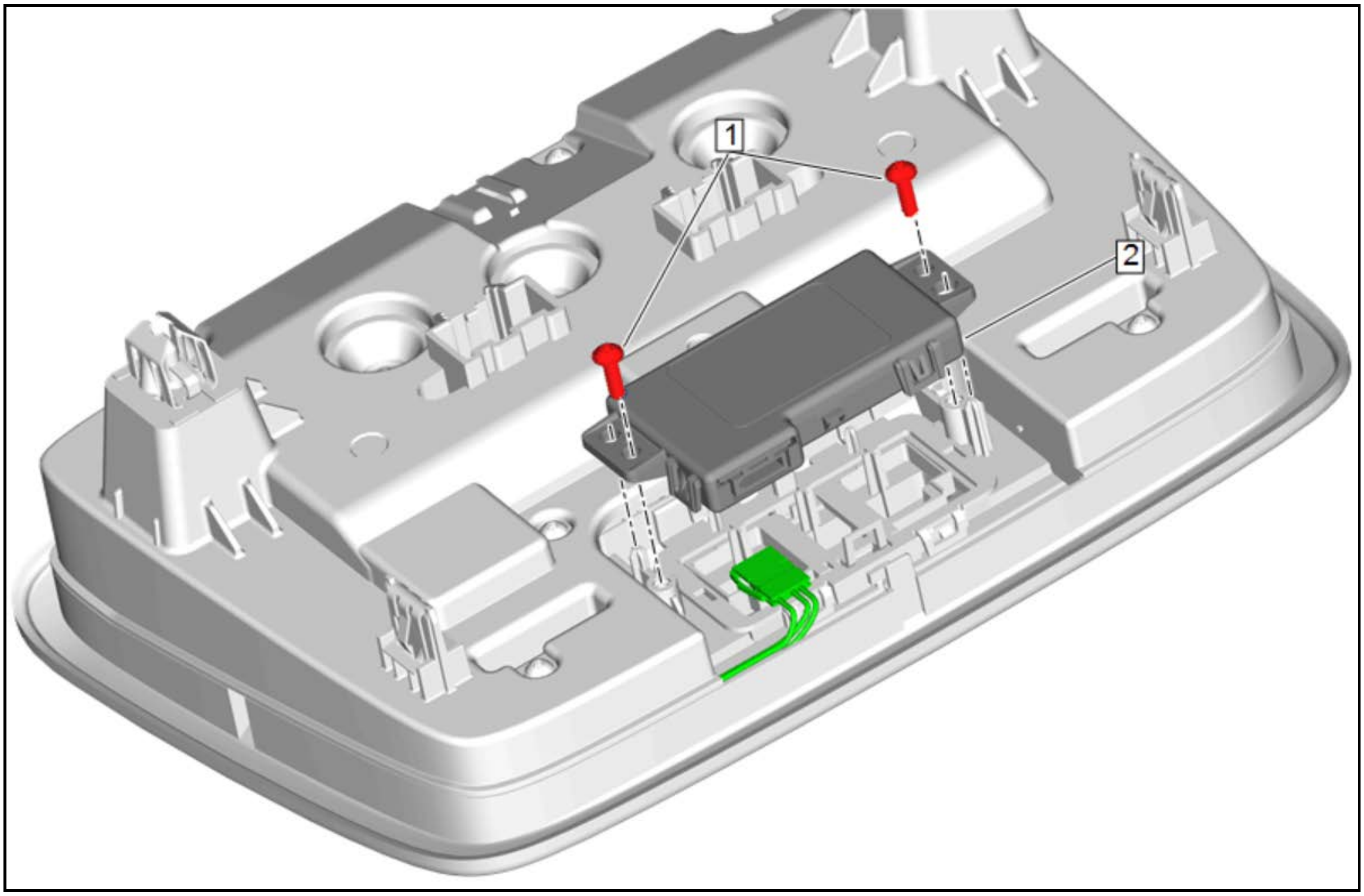
3. Roof Console Lamp Trim Plate (1) » Remove [2x]

   Note: Note the location of the fastener opening. The fasteners are being misaligned and not retaining the forward roof console clips during installation.

4. Roof Console Bolt (2) » Remove [2x]



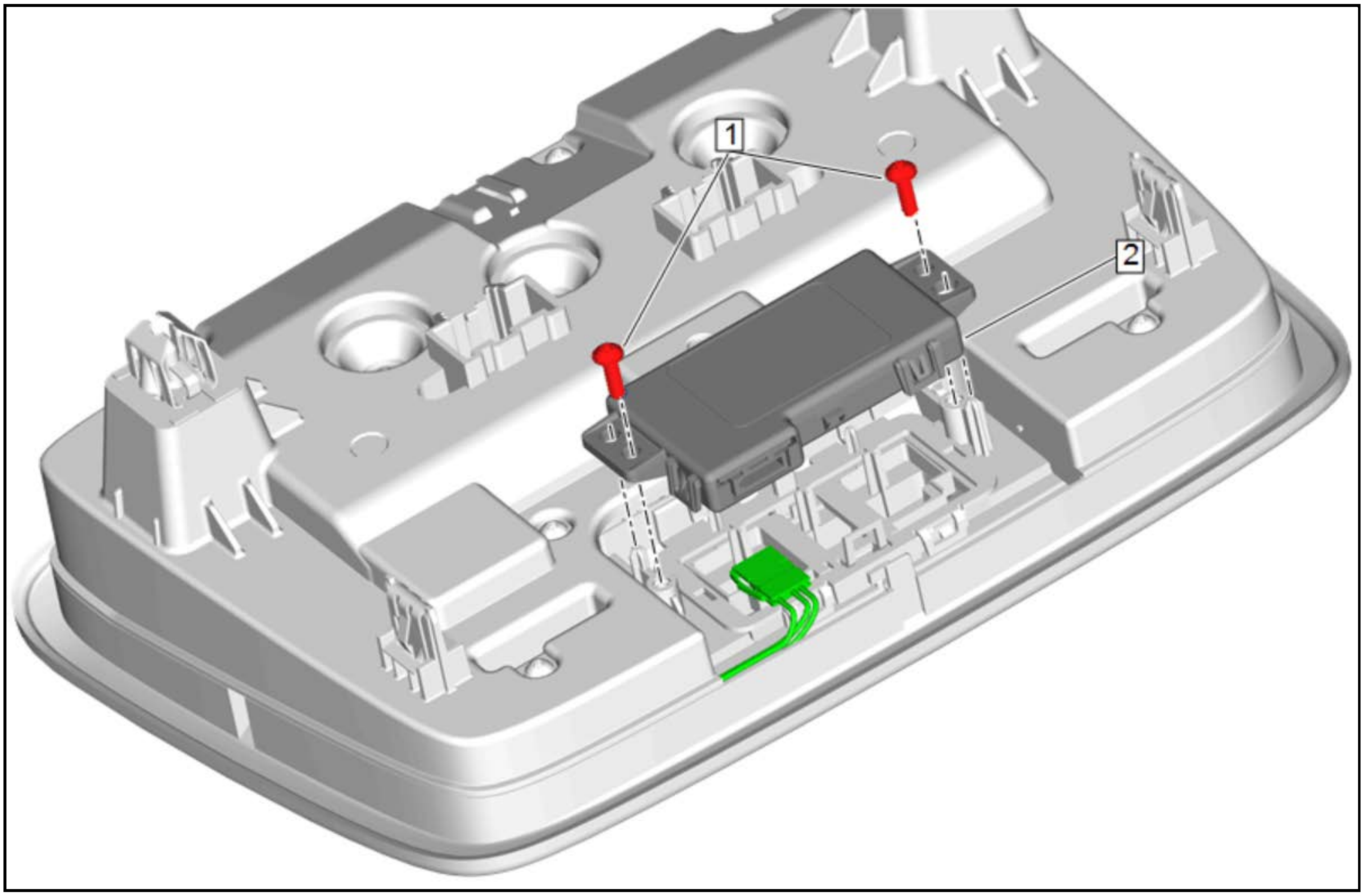
5. Roof Console (1) » Remove
6. Disconnect the electrical connectors.
7. Remove the wiring harness retainers.



5002233

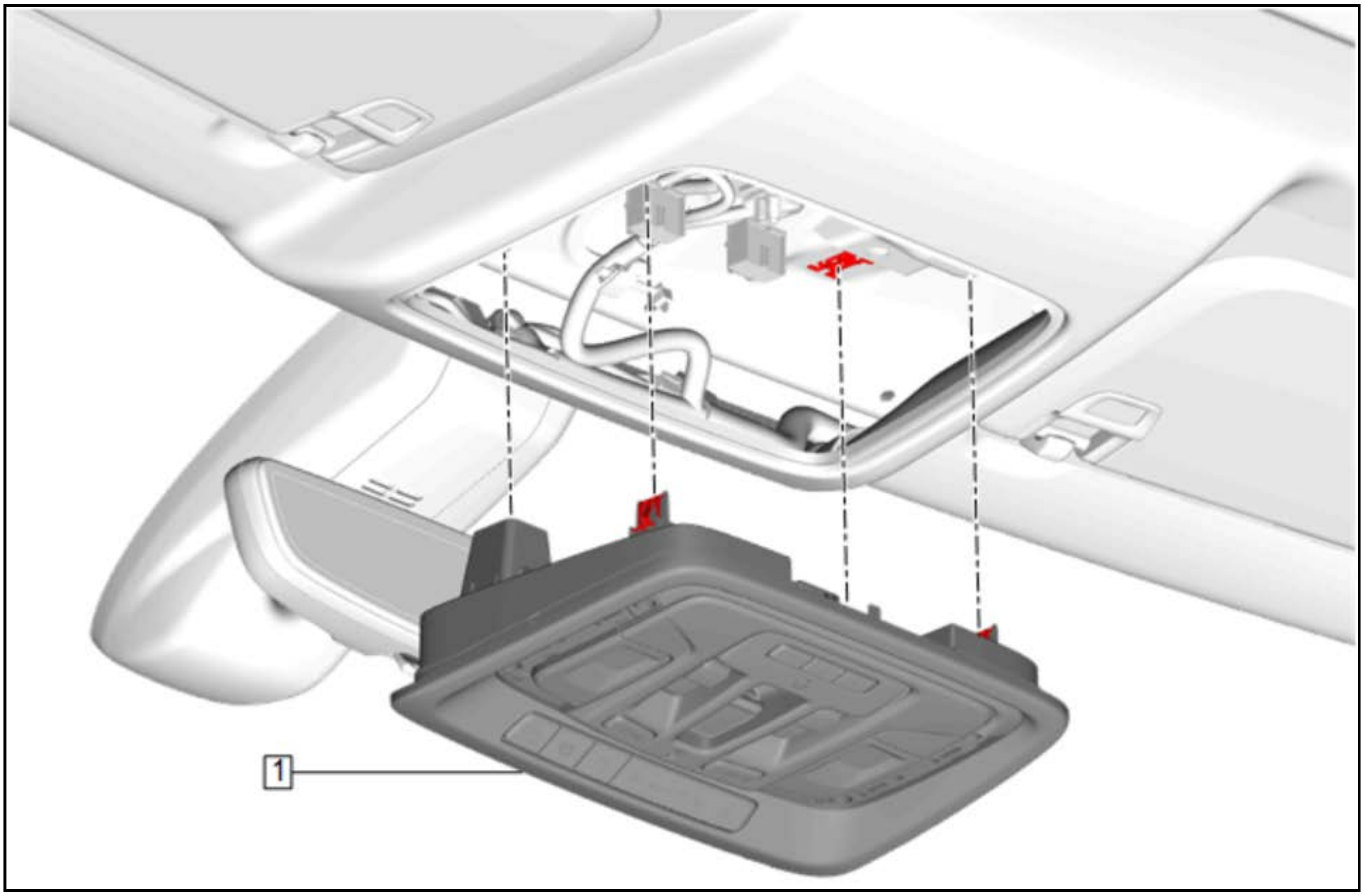
8. Disconnect the electrical connector.
9. Garage Door Opener Transmitter Bolt (1) » Remove [2x]
10. Garage Door Opener Transmitter (2) » Remove

Installation Procedure

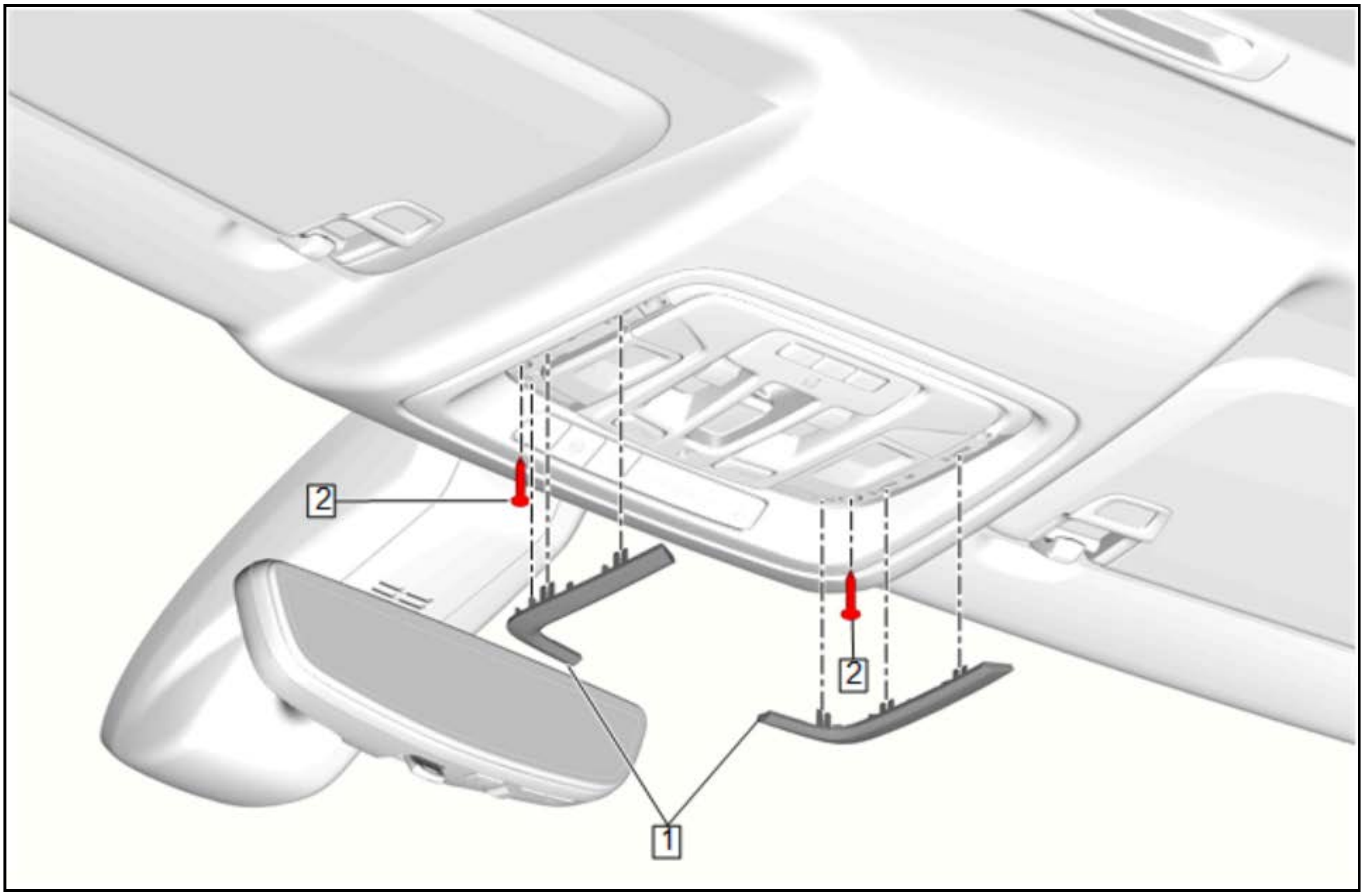


5002233

1. Garage Door Opener Transmitter (2) » Install
2. Garage Door Opener Transmitter Bolt (1) » Install and tighten [2x] — *Fastener Specifications on page 8-218*
3. Connect the electrical connector.



4. Connect the electrical connectors.
5. Install the wiring harness retainers.
6. Roof Console (1) » Install



5151170

Note: Use a light to locate the fastener boss when installing the fasteners. Pull down on the forward end of the roof console to verify that the retention clips are secure.

7. Roof Console Bolt (2) » Install and tighten [2x]
8. Roof Console Lamp Trim Plate (1) » Install [2x]

Description and Operation

Front Side Door Access Control Transmitter Description and Operation

Object-ID=6047211 Owner=Day, Colin LMD=28-Jun-2022 LMB=Day, Colin

Front Side Door Access Control Transmitter Description and Operation

The Front Side Door Access Control Transmitter is an accessory offered to be used as a vehicle entry device. Similar to the Keyless Entry Transmitter, the Front Side Door Access Control Transmitter will send a radio frequency signal to the Remote Function Actuator. Next, the Remote Function Actuator sends a signal to the Body Control Module via LIN communication. The BCM will interpret this signal and either lock or unlock the vehicle as a result. A low transmitter battery or radio frequency interference from aftermarket devices, such as 2-way radios, power inverters, computers, etc., may cause a system malfunction. High radio frequency traffic areas, such as gas stations that use pay-at-the-pump radio frequency transponders, may also cause interference that could lead to a malfunction.

Like the Keyless Entry Transmitter, the Front Side Door Access Control Transmitter is programmed to the vehicle's Body Control Module. This means the Front Side Door Access Control Transmitter will populate one of the 8 programmable spaces in the BCM for Keyless Entry Transmitters. The Front Side Door Access Control Transmitter will need to be reprogrammed in the event of BCM replacement. This can only be achieved with the Master Code. If the Master Code is not retrievable, a new Front Side Door Access Control Transmitter with accompanying wallet card will need to be programmed to the new BCM.

The Front Side Door Access Control Transmitter has 5 buttons depicting numbers from 0 to 9. Each button represents a character of a 5 digit code that the vehicle owner may program, which will be referred to as a personal code. The user has 3 attempts to input the correct access code before the Front Side Door Access Control Transmitter enters lockout mode for 1 minute. This will occur up to 2 more times if the incorrect access code is entered repeatedly. After that, any additional 3 attempts will cause the Front Side Door Access Control Transmitter to enter lockout mode for 23 minutes. There is an LED light at the top of the Front Side Door Access Control Transmitter that provides feedback to the user. Each Front Side Door Access Control Transmitter is sold with a wallet card that contains a master code that may be used for keyless entry as well as programming a personal code. The master code will always allow operation of the Front Side Door Access Control Transmitter and may be used to program a new personal code. Entering the 5 digit access code will unlock the driver door. Pressing the 3/4 key within 5 seconds of entering the 5 digit access code with unlock all doors. Pressing the 7/8 and 9/0 button will lock all doors. To change the personal code, refer to the wallet card included with the Front Side Door Access Control Transmitter.

The Front Side Door Access Control Transmitter contains a button cell battery that is not serviceable. Once the battery exceeds the expected lifetime, the Front Side Door Access Control Transmitter will need to be replaced. A new Front Side Door Access Control Transmitter will come with new wallet card.

Garage Door Opener Description and Operation

Object-ID=2168525 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

The garage door opener is fixed and rolling code capable. Rolling code is a system that allows the code that the customers receiver receives from the garage door opener to change every time the garage door opener is used within operating range of the receiver. Rolling code programming requires the customer to push a learn/program button on the garage door opener receiver at their home. This button is usually located on the receiver unit under a cover (light cover) on one end of the unit. The customer must follow the garage door opener manufacturers instructions to program/learn the receiver to accept the Universal Home Remote System as an authorized opener for their unit . When the receiver and the garage door opener are initially programmed together, a code is established and a new code is created for every new transmission. The software in the receiver recognizes the garage door opener and accepts the new code.

The garage door opener is compatible with most, but not all types and brands of transmitters.

The garage door opener is a transmitter operating between 288–434 MHz. The power and range of the transmitter is limited to comply with laws governing the generation of radio frequency interference. The transmitter is programmed by the user to accept the signal generated by the user's transmitters.

The garage door opener has 3 buttons that may be programmed for individual transmitter/receiver combinations to control up to 3 garage door openers, security gates, lighting systems, etc. Each button represents a transmitter code section of the transmitter, which operates separately from any other button, and may be considered a separate transmitter. Operation consists of simply pressing a button to activate the corresponding transmitter.

The garage door opener does not need any programming after it is replaced. However, for the opener function it must be programmed to the customer’s garage door or other devices such as a gate. The programming can only be performed at the device being programmed, it cannot be programmed at a service facility. Instructions for programming are listed in the Garage Door Opener Malfunction document in a Diagnostic Aid.

Note: Do not use the garage door opener (GDO) with any garage door opener that does not have the stop and reverse safety feature. This includes any garage door opener model manufactured before April 1, 1982.

Keyless Entry System Description and Operation

Object-ID=5379259 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Keyless Entry System Description and Operation – Active

The keyless entry system is a vehicle entry device. The keyless entry system is used in conjunction with the door locks to unlock the vehicle. Keyless entry will lock/unlock a door or open the rear compartment lid when a corresponding button on the keyless entry transmitter is pressed. This is accomplished by the transmitter sending a radio frequency to the remote control door lock receiver that has a direct link to the body control module (BCM). The BCM interprets the signal and activates the requested function or requests the appropriate ECU to activate the function via a serial data message. A low transmitter battery or radio frequency interference from aftermarket devices, such as 2-way radios, power inverters, computers, etc., may cause a system malfunction. High radio frequency traffic areas, such as gas stations that use pay-at-the-pump radio frequency transponders, may also cause interference that could lead to a malfunction. Keyless entry allows you to operate the following features:

- Door lock/unlock
- Rear compartment lid release
- Illuminated entry lamps
- Panic alarm/vehicle locator
- Remote vehicle start
- Passive keyless entry able/disable
- Automatic window express down, if equipped
- Automatic window express up, if equipped
- Automatic power mirror folding/unfolding, if equipped

Keyless Entry System Description and Operation – Passive

Passive keyless entry allows entry to a locked vehicle without pressing any buttons on the keyless entry transmitter. The passive entry system uses low frequency antennas in several different areas on the vehicle to determine the location of the transmitter. When passively opening a locked door or the rear compartment, you must have a programmed transmitter with you in your pocket, purse, or briefcase within a one meter range.

When an exterior door handle button is pressed or the rear compartment touch pad is pressed, the body control module activates the low frequency antenna which sends out a challenge to the keyless entry transmitter. Because of the low frequency, communication range is limited. The antenna will emit the challenge in a one meter range. The transmitter must be within this range to receive the challenge. The transmitter receives this challenge and emits it's response as an RF message, which is received by the remote control door lock receiver. If the response is correct, entry into the vehicle will be allowed.

As a customer convenience feature, the keyless entry system will notify the driver if the transmitter has been left in the vehicle after exiting by chirping the vehicle horn three times and displaying a message on the DIC. This may be turned off using vehicle personalization. Also, if the transmitter is left in the vehicle after the central door lock switch has been used to lock the vehicle, the driver door will remain unlocked after exiting the vehicle. This is intended to prevent locking the transmitter in the vehicle and being unable to access it.

Keyless Entry System Description and Operation – Keyless Start

The keyless start portion of the keyless entry system allows vehicle starting, having only the transmitter as your key. The keyless start system uses low frequency antennas in three different locations on the vehicle to determine the location of the transmitter. Multiple antenna are used to ensure complete coverage of the vehicle interior and rear compartment. When using the keyless start system, a programmed transmitter must be in the vehicle's interior, in the driver's pocket, purse, or briefcase.

When the ignition mode switch is pressed, the low frequency antennas emit a challenge to the keyless entry transmitter. The transmitter receives this challenge and emits it's response as an RF message, which is received by the remote control door lock receiver. If the response is correct, vehicle starting will be allowed. If RF communication is interrupted, a “No Remote Detected” message will be displayed on the DIC. In these cases, the transmitter can be placed in the transmitter pocket located in the center console. The immobilizer antenna coil is located directly beneath the transmitter pocket. Placing the transmitter in the pocket will create a low powered coupling between the transmitter and immobilizer antenna, allowing communications to occur and enabling vehicle starting. If the key has been idle the DIC may display “Key In Sleep Mode, Move Key, Then Start”. In this case move the vehicle key to start the vehicle.

The keyless entry system has the following components:

- Keyless entry integrated key/transmitter
- Driver and passenger side antennas
- Driver and passenger door handle switches (part of the door handle assembly)
- Rear fascia antenna
- Immobilizer antenna coil (front console antenna function)
- Rear console antenna
- Trunk antenna (rear compartment)
- Body control module (BCM)
- Remote control door lock receiver

Keyless Entry Transmitters

By operating any of the exterior door handle buttons or the start/stop switch, a nearby transmitter is challenged by a keyless entry antenna. The transmitter will send an RF response to the remote control door lock receiver, which communicates with the BCM. The BCM will interpret this communication and either allow or deny vehicle entry or starting.

Side Antennas

The keyless entry side antennas are used to transmit low frequency communications to the keyless entry transmitters.

The keyless entry side antennas are located in the driver and passenger body sides. The antennas are controlled by the body control module. When the exterior door handle button is pressed, the respective antenna will send out a challenge to the keyless entry transmitter, which begins the passive entry communications.

Rear Fascia Antenna

The rear fascia antenna is used to transmit low frequency communication to the keyless entry transmitters for entry to rear compartment.

The rear fascia antenna is located behind the rear fascia. The antenna is controlled by the body control module. When the rear compartment touch pad is pressed, the antenna sends out a challenge to the keyless entry transmitter, which begins the passive entry communications.

Immobilizer Coil Antenna

This antenna is located in the front of the center console.

The Immobilizer antenna coil is used for vehicle starting functions and for learning vehicle keys. When the ignition mode switch is pressed, the antenna is energized or "pinged". This emits a low frequency challenge signal that is received by the keyless entry transmitter. The transmitter will then reply to this challenge with a response and, if correct, vehicle starting will occur. If the transmitter battery is dead, weak, or the RF signal is being interrupted, the transmitter may be placed in the pocket to create a low powered coupling between the transmitter and immobilizer coil antenna, allowing communications to occur and enabling vehicle starting.

Rear Console Antenna

This antenna is located in the rear of the center console.

The rear console antenna is used for vehicle starting functions. When the ignition mode switch is pressed, the antenna is energized or "pinged". This emits a low frequency challenge signal that is received by the keyless entry transmitter. The transmitter will then reply to this challenge with a response and, if correct, vehicle starting will occur.

Rear Compartment Antenna

This antenna is located near the center of the rear compartment area.

The rear compartment antenna is used for vehicle starting functions. When the ignition mode switch is pressed, the antenna is energized or "pinged". This emits a low frequency challenge signal that is received by the keyless entry transmitter. The transmitter will then reply to this challenge with a response and, if correct, vehicle starting will occur.

OnStar® Remote Link

A vehicle operator may have the ability to perform some of the keyless entry functions using applications on personal devices such as smart phones.

Body Control Module (BCM)

The BCM is a multi-function module that performs the following functions:

- Receive and authenticate active transmitter and keyless start/entry signals from the remote control door lock receiver
- Determines the function requested by the transmitter signal
- Performs the function requested by the transmitter signal
- Activating vehicle antennas for passive keyless entry functions
- Activating vehicle antennas for keyless start functions
- Backup control for the ECM accessory wakeup and the run/crank relay
- If equipped, controls the electronic steering column lock
- Receiver of the exterior door handle switch inputs and door open switch (not the door ajar switch)
- Ignition mode switch monitoring

Unlock Driver Door Only – Active

Momentarily press the transmitter UNLOCK button in order to perform the following functions:

- Unlock only the driver door or all doors, if enabled through personalization
- Illuminate the interior lamps for a determined length of time, or until the ignition is turned ON
- Flash the exterior lights, if enabled through personalization
- Disarm the Content Theft Deterrent (CTD) system
- Deactivate the CTD system when in the alarm mode

Unlock All Doors – Second Operation – Active

Momentarily press the transmitter UNLOCK button a second time, within 5 seconds of the first press, to perform the following function:

Unlock the remaining doors

Unlock Driver Door Only – Passive

If enabled through personalization, approach the driver door with a valid keyless entry transmitter and press the door handle button to perform the following functions:

- Unlock and open only the driver door
- Disarm the CTD system, if equipped
- Deactivate the CTD system when in the alarm mode

Unlock All Doors – Passive

Approach any non driver door (front or rear) or, if enabled through personalization, the driver door with a valid keyless entry transmitter and press the door handle button to perform the following functions:

- Unlock all vehicle doors
- Disarm the CTD system, if equipped
- Deactivate the CTD system when in the alarm mode

Lock All Doors – Active

Press the transmitter LOCK button to perform the following functions:

- Lock all vehicle doors
- Immediately turn off the interior lamps
- Flash the exterior lights, if enabled through personalization
- Chirp the horn, if enabled through personalization
- Arm the CTD system

Lock All Doors – Passive

Exit the vehicle (with ignition off) with the keyless entry transmitter to automatically perform the following functions, if equipped.

- Lock all vehicle doors after a delay
- Flash the exterior lights, if enabled through personalization
- Chirp horn, if enabled through personalization
- Arm the CTD system

When all doors are closed, they can also be locked from the exterior by operating a front door handle button or touch pad while having a valid transmitter within range. Vehicles equipped with a rear door button can also lock all doors from the rear doors.

Rear Compartment Lid Release – Active

If the vehicle transaxle is in PARK or NEUTRAL, a double press of the transmitter rear compartment release button will open the rear compartment lid.

Rear Compartment Lid Release – Passive

Approach the rear of a locked vehicle with a valid keyless entry transmitter. Press the rear compartment lid release touch pad. The rear compartment lid will open.

Vehicle Locator/Panic Alarm/Active

A single press of the panic button performs the following functions. Some functions may be dependent on personalization settings:

- Pulses the horn three times
- Flashes the exterior lamps three times

A press and hold of the panic button performs the following functions:

- Pulses the horn and flashes the parking lamps for 30 second or until the following conditions occur:
  - – The panic button is pressed
  - – The ignition switch is turned to the RUN position with a valid key

Remote Vehicle Start/Active

The remote vehicle start function allows engine starting while not in the vehicle. It also allows the vehicle HVAC system and other vehicle systems to enable, providing a comfortable vehicle upon entry. The remote vehicle start sequence begins by pressing and releasing the remote vehicle start button on the keyless entry transmitter twice. The turn signal lamps will illuminate to indicate the vehicle has received the remote start request. Each time a remote vehicle start is performed, the vehicle doors are locked, however they may then be unlocked/locked with the transmitter at any time. Once activated, the engine is allowed to run for 15 minutes. The remote start operation can be repeated as many times as desired up to a total run time of 30 minutes. The remote vehicle start event may be cancelled at any time by pressing only the remote vehicle start button on the transmitter or by entering the vehicle and turning ON the hazard lamps.

Hood Ajar Switch/Active

The hood switch provides status of the hood to the BCM for remote vehicle start purposes. The switch is integrated into the hood latch assembly. The hood ajar switch provides 2 separate inputs to the BCM. These separate inputs allow the BCM to actively monitor for a hood ajar switch fault.

Remote Vehicle Start Circuit Description/Active

The BCM receives a signal from the keyless entry transmitter indicating a remote vehicle start request. The BCM and ECM use the following inputs to verify the system is ready to enable a remote vehicle start event:

- Vehicle is not in valet mode
- Vehicle is in park
- Keyless entry transmitter is not in the vehicle
- The hood is closed
- The hazard switch is OFF
- Vehicle power mode is OFF
- The malfunction indicator lamp (MIL) is not commanded ON by the ECM
- Remote start timer does not equal 0 (the 30 minute maximum time has not been used)

When the BCM determines all conditions meet those required for a remote vehicle start event, a message is sent via serial data to the ECM. While the ECM is in remote vehicle start mode it will cut fuel to the engine if any of the following monitored conditions occur:

- Vehicle speed is greater than 0
- Transmission is not in P
- Excessive engine coolant temperature
- Low oil pressure
- Engine crank time is greater than 30 seconds
- Excessive engine speed
- Accelerator pedal position too high
- Immobilizer system indicates a theft attempt

If any conditions prevent a remote start or cause a remote start operation to be cancelled there is a record of the cause in the scan tool.

Keyless Entry Personalization

Vehicle lock/unlock functions and remote vehicle start settings may be personalized for the vehicle. This includes the capability of turning the passive entry system completely off. For functional descriptions and programming instructions, refer to the vehicle owners manual.

Special Tools and Equipment

Object-ID=1878909 Owner=Day, Colin LMD=31-Mar-2022 LMB=Day, Colin

Note: Key Fob Information Screen Layout.

- VIN #: 12345678
- Data: NN EE PP SS
- Part #: 12345678

  Note: Key data line is in HEX

- NN: UID Number/Key Number
- EE: Total Number of Keys Ever Erased
- PP: Total Number of Keys Ever Programmed
- SS: Total Number of Keys Currently Programmed

Note: It is important to ensure the EL 52545 is up to date with the latest software available.

Illustration	Tool Number/ Description
5331982	EL 52545 Tire Pressure Monitor Sensor and RF Diagnostic Tool

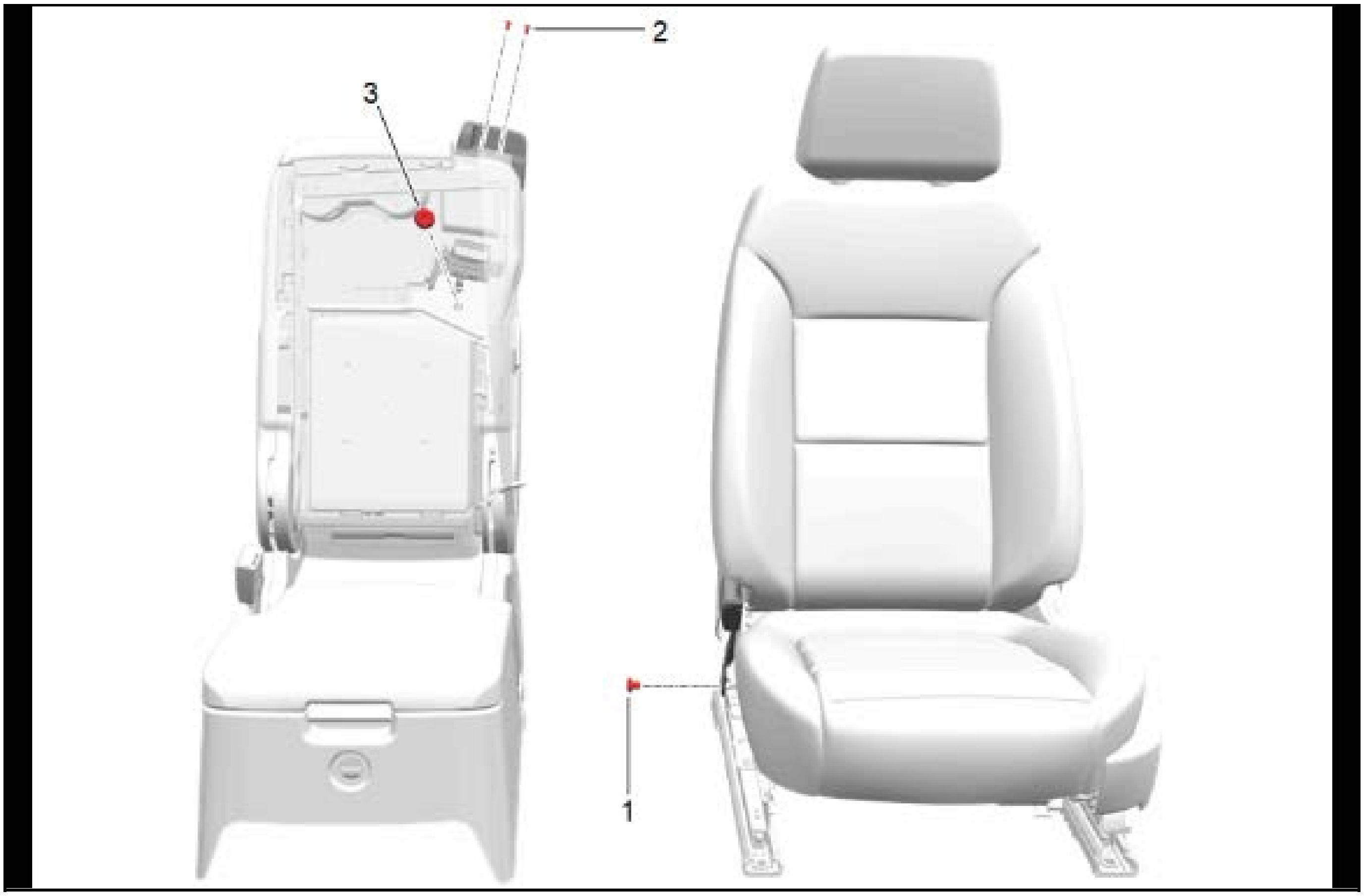
Safety and Security

Seat Belts

Specifications

Fastener Specifications

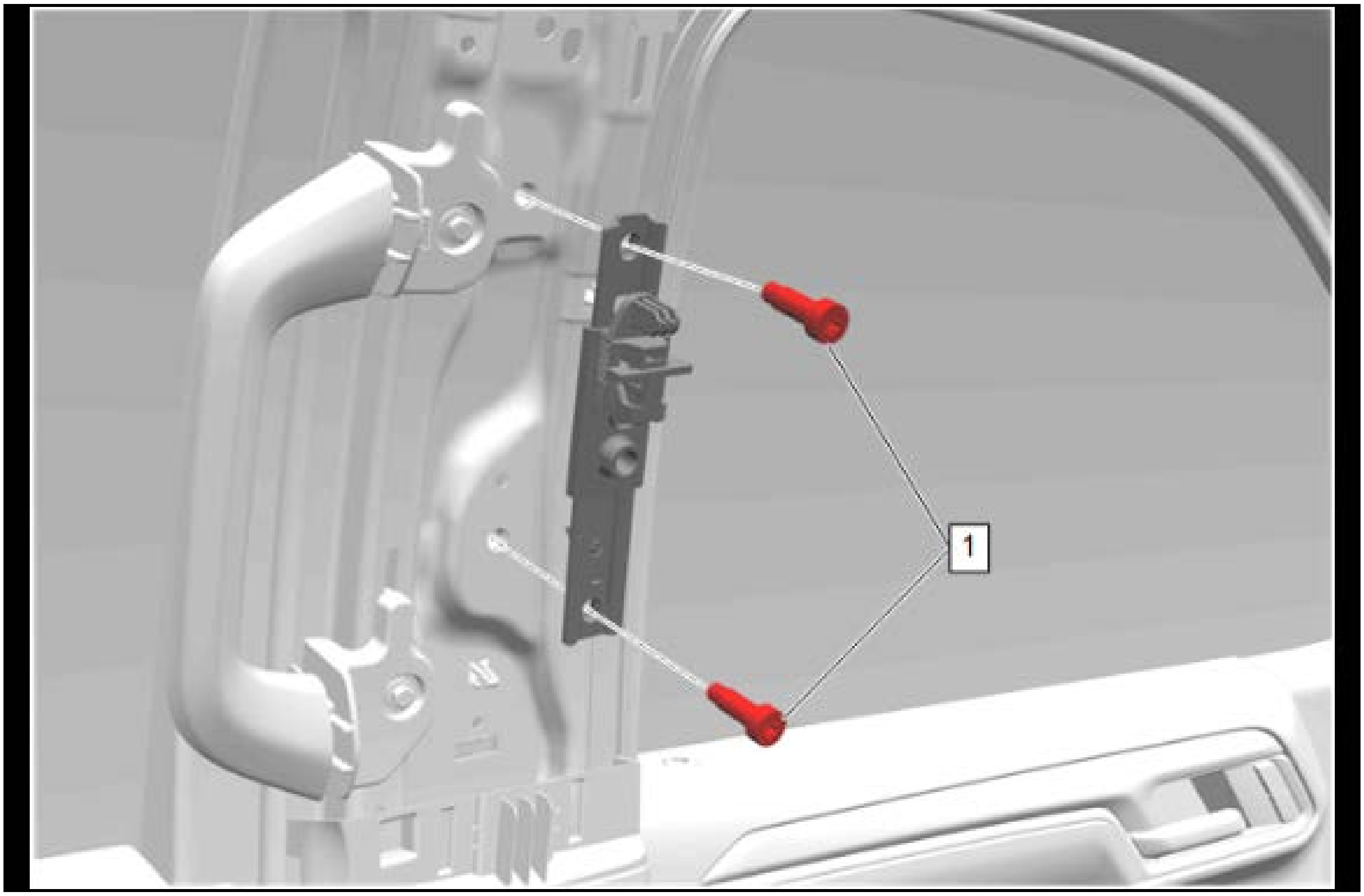
Object-ID=5875798 Owner=Palkovitz, John LMD=29-Jul-2021 LMB=Schaller, Dawn



5666834

Front Seat Belts

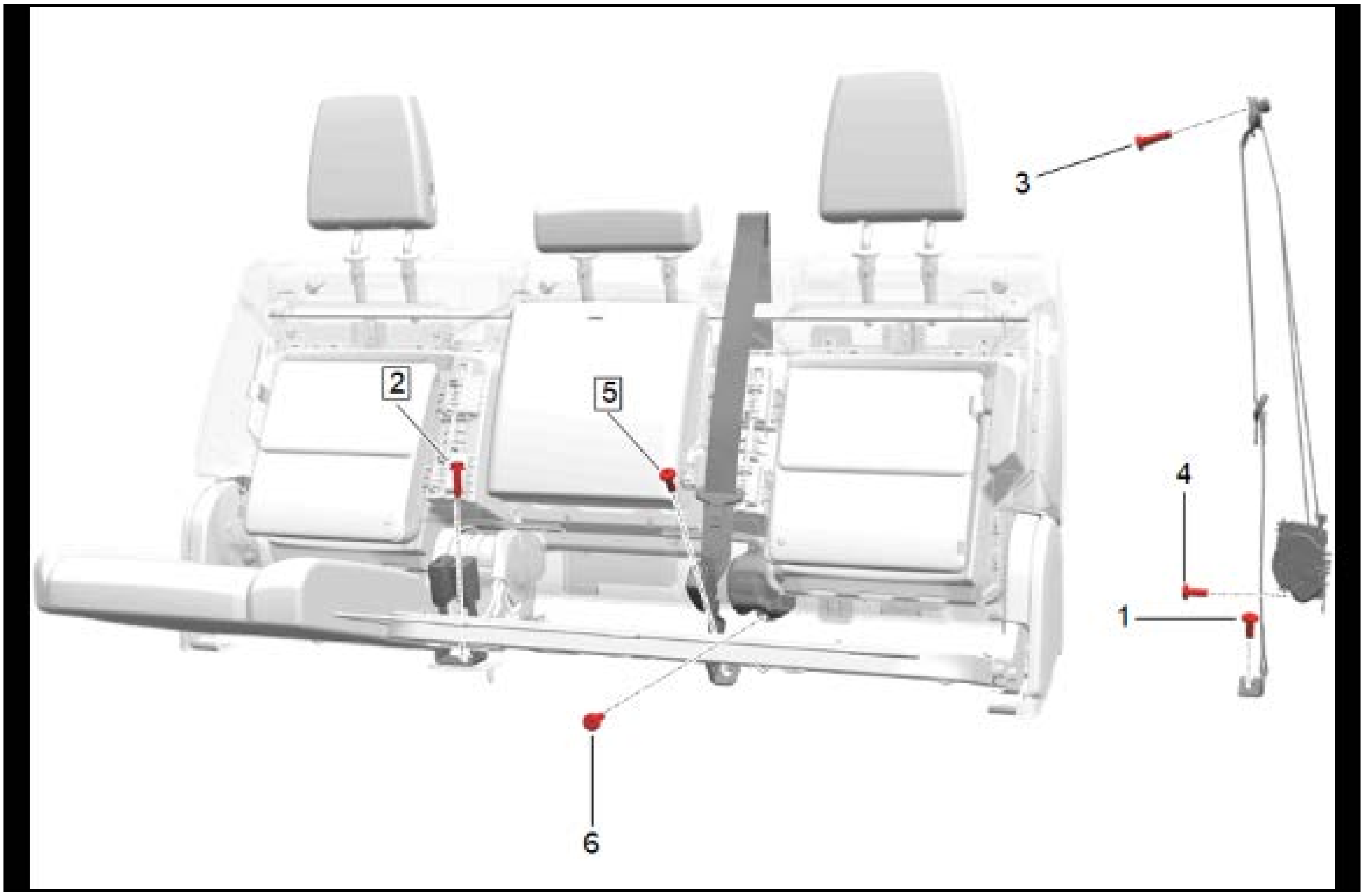
Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Front Seat Belt Buckle Bolt	—	Yes	45 N•m(33 lb ft)	*Front Seat Belt Buckle Replacement on page 8-363*
2	Front Seat Belt Opening Bezel Bolt [2x]	—	—	1.1 N•m(10 lb in)	*Front Seat Belt Opening Bezel Replacement (Front Belt) on page 8-366* or *Front Seat Belt Opening Bezel Replacement (Center Belt with Storage Armrest) on page 8-371*
3	Front Seat Belt Retractor Bolt	—	—	45 N•m(33 lb ft)	*Front Seat Center Belt Retractor Replacement (with Storage Armrest) on page 8-379*



5875675

Front Seat Belt Guide Adjuster

Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Front Seat Belt Adjust Bolt [2x]	—	Yes	45 N•m(33 lb ft)	Front Seat Belt Guide Adjuster Replacement on page 8-408



Rear Seat Belts

Callout	Component Name	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification Metric (English)	Procedure
1	Rear Seat Belt Anchor Plate Bolt	—	—	45 N•m(33 lb ft)	*Rear Seat Belt Retractor Replacement on page 8-414*
2	Rear Seat Belt Buckle Bolt	—	Yes	45 N•m(33 lb ft)	*Rear Seat Belt Buckle Replacement on page 8-403*
3	Rear Seat Belt Guide Bolt	—	—	45 N•m(33 lb ft)	*Rear Seat Belt Retractor Replacement on page 8-414*
4	Rear Seat Belt Retractor Bolt	—	—	45 N•m(33 lb ft)	*Rear Seat Belt Retractor Replacement on page 8-414*
5	Rear Seat Belt Retractor Bolt @ Rear Seat Center Belt Retractor	—	Yes	45 N•m(33 lb ft)	Rear Seat Back Cushion Removal and Installation
6	Rear Seat Center Belt Retractor Bolt	—	—	45 N•m(33 lb ft)	*Rear Seat Center Belt Retractor Replacement on page 8-405*

Object-ID=5875917 Owner=Palkovitz, John LMD=15-Jul-2021 LMB=McMillan, Tim

Adhesives, Fluids, Lubricants, and Sealers

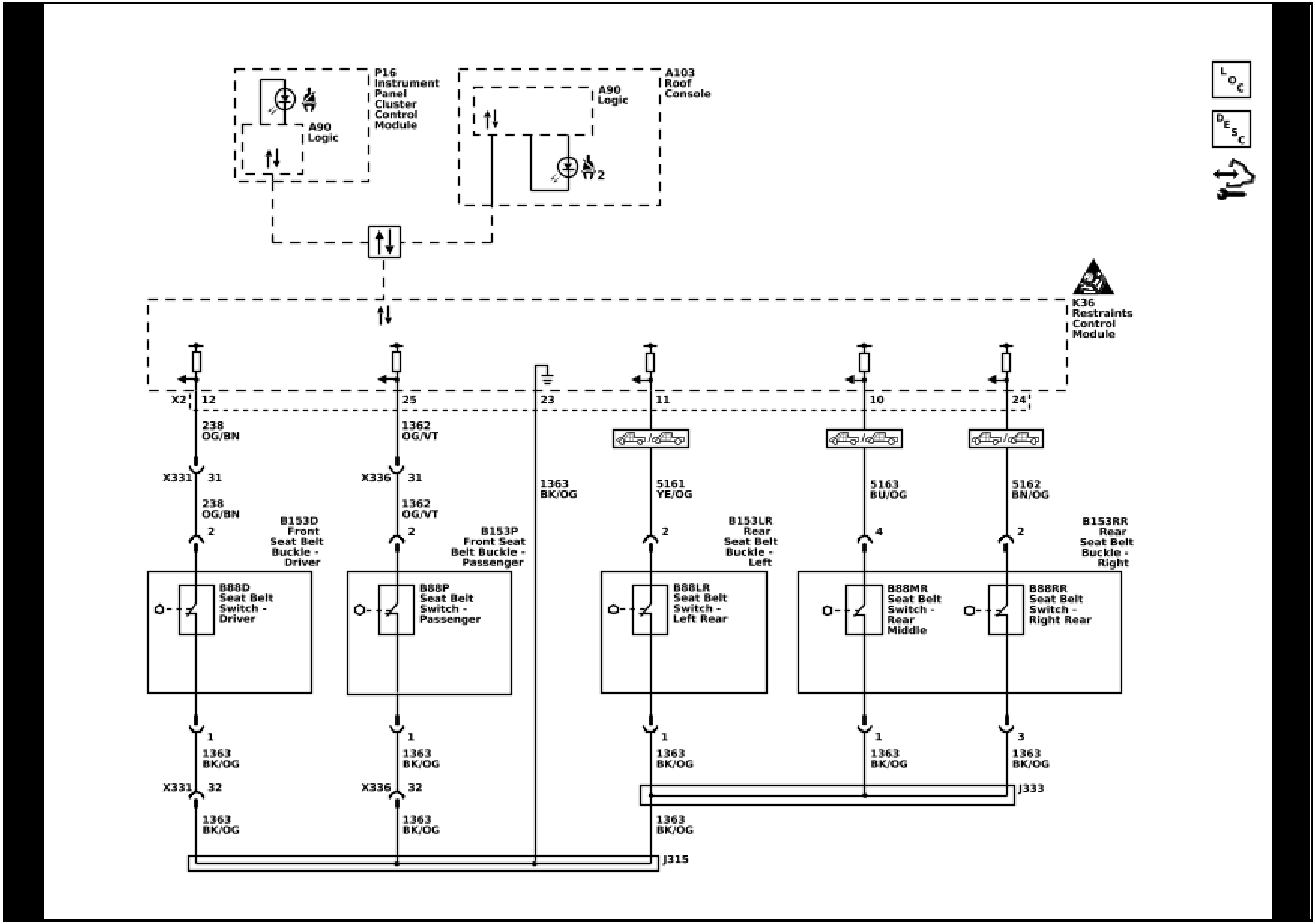
Application	Type of Material	GM Part Number	
		United States	Canada
Front Seat Belt Buckle Bolt	Thread Locking Adhesive	19333511	10953489
Front Seat Belt Adjust Bolt	Thread Locking Adhesive	19333511	10953489
Rear Seat Belt Buckle Bolt	Thread Locking Adhesive	19333511	10953489

Adhesives, Fluids, Lubricants, and Sealers (cont'd)

		GM Part Number	
Application	Type of Material	United States	Canada
Rear Seat Belt Retractor Bolt @ Rear Seat Center Belt Retractor	Thread Locking Adhesive	19333511	10953489

Schematic and Routing Diagrams

Seat Belt Schematics Object-ID=6152413 (Seat Belts)


P16 Instrument Panel Cluster Control Module
A90 Logic
A103 Roof Console
A90 Logic
2
K36 Restraints Control Module
X2
12
25
23
11
10
24
238 OG/BN
1362 OG/VT
X331
31
X336
31
238 OG/BN
1362 OG/VT
1363 BK/OG
5161 YE/OG
5163 BU/OG
5162 BN/OG
2
2
2
4
2
B153D Front Seat Belt Buckle - Driver
B153P Front Seat Belt Buckle - Passenger
B153LR Rear Seat Belt Buckle - Left
B153RR Rear Seat Belt Buckle - Right
B88D Seat Belt Switch - Driver
B88P Seat Belt Switch - Passenger
B88LR Seat Belt Switch - Left Rear
B88MR Seat Belt Switch - Rear Middle
B88RR Seat Belt Switch - Right Rear
1
1
1
1
3
1363 BK/OG
1363 BK/OG
1363 BK/OG
1363 BK/OG
1363 BK/OG
X331
32
X336
32
J333
1363 BK/OG
1363 BK/OG
1363 BK/OG
J315

6150647

Diagnostic Information and Procedures

DTC B1AD2

Object-ID=5633907 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1AD2: Driver Seat Belt Sensor Signal Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open Circuit	Short to Voltage	Signal Performance
Driver Seat Belt Switch Signal	B1AD2 11	B1AD2 13	B1AD2 12	—
Driver Seat Belt Buckle Low Reference	—	B1AD2 13	—	—
Driver Seat Belt Indicator Control	B1AD2 11	B1AD2 13	B1AD2 12	—
Ground	—	B1AD2 13	—	—

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Circuit	Description
Control	The output is PWM controlled.
Low Reference	Grounded through the control module.

Component	Description
P16 Instrument Panel Cluster Control Module	The control module will illuminate both the driver and passenger airbag and seat belt indicators when triggered by the passenger presence module.
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

B1AD2 12

The driver seat belt indicator circuit is shorted to voltage.

B1AD2 11

The driver seat belt indicator circuit is shorted to ground.

B1AD2 13

The driver seat belt indicator circuit is open.

Action Taken When the DTC Sets

The Restraints Control Module will store the DTC and illuminate the Airbag indicator on the P16 Instrument Panel Cluster Control Module.

Conditions for Clearing the DTC

The condition for setting the DTC no longer exists.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike. Refer to Testing for Intermittent Conditions and Poor Connections

1. Ignition ON.
2. Verify the appropriate scan tool Passenger Seat Belt Status parameter changes between Fastened and Unfastened when the seat belt is buckled and unbuckled.

⇒ **If the parameter does not change**

Refer to Circuit/System Testing

⇓ **If the parameter changes**

3. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - B153D Front Seat Belt Buckle - Driver
  - K36 Inflatable Restraint Sensing and Diagnostic Module
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF, disconnect the harness connector at the appropriate B153 Seat Belt Buckle. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 5 Ω between the low reference circuit terminal 1 and ground.

⇒ **If 5 Ω or greater**

2.1. Ignition OFF.

2.2. Verify the SIR system is disabled.

2.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

2.4. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If less than 5 Ω**

3. Ignition ON.
4. Verify the appropriate scan tool Seat Belt Status parameter is Buckled.

⇒ **If not Buckled**

4.1. Ignition OFF.

4.2. Verify the SIR system is disabled.

4.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

4.4. Test for infinite resistance between the signal circuit terminal 2 and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If Buckled**

5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the low reference circuit terminal 1.
6. Verify the appropriate scan tool Seat Belt Status parameter is Unbuckled.

⇒ **If not Unbuckled**

6.1. Ignition OFF.

6.2. Verify the SIR system is disabled.

6.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module, ignition ON.

6.4. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇓ If less than 1 V

6.5. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If Unbuckled**

7. Test or replace the B153D Front Seat Belt buckle - Driver.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Front Seat Belt Buckle Replacement on page 8-363*
- Control Module References for Restraints Control Module replacement, programming, and setup

DTC B1AD3

Object-ID=5197893 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1AD3: Co-Driver Seat Belt Sensor Signal Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open Circuit	Short to Voltage	Signal Performance
Passenger Seat Belt Switch Signal	B1AD3 11	B1AD3 13	B1AD3 12	—
Passenger Seat Belt Buckle Low Reference	—	B1AD3 13	—	—
Passenger Seat Belt Indicator Control	B1AD3 11	B1AD3 13	B1AD3 12	—
Ground	—	B1AD3 13	—	—

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Circuit	Description
Control	The output is PWM controlled.
Low Reference	Grounded through the control module.

Component	Description
P16 Instrument Panel Cluster Control Module	The control module will illuminate both the driver and passenger airbag and seat belt indicators when triggered by the passenger presence module.
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

B1AD3 12

The passenger seat belt indicator circuit is shorted to voltage.

B1AD3 11

The passenger seat belt indicator circuit is shorted to ground.

B1AD3 13

The passenger seat belt indicator circuit is open.

Action Taken When the DTC Sets

The Restraints Control Module will store the DTC and illuminate the Airbag indicator on the P16 Instrument Panel Cluster Control Module.

Conditions for Clearing the DTC

The condition for setting the DTC no longer exists.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike. Refer to Testing for Intermittent Conditions and Poor Connections

1. Ignition ON.
2. Verify DTC B1AD3 is not set as current.

⇒ **If DTC B1AD3 is set as current.**

Refer to Circuit/System Testing

⇓ **If DTC B1AD3 is not set as current.**

3. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to SIR Service Precautions on page 8-483.
- Refer to SIR Disabling and Enabling on page 8-481.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - B153P Front Seat Belt Buckle - Passenger
  - K36 Inflatable Restraint Sensing and Diagnostic Module
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF, disconnect the harness connector at the appropriate B153 Seat Belt Buckle. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 5 Ω between the low reference circuit terminal 1 and ground.

⇒ **If 5 Ω or greater**

2.1. Ignition OFF.

2.2. Verify the SIR system is disabled.

2.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

2.4. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If less than 5 Ω**

3. Ignition ON.
4. Verify the appropriate scan tool Seat Belt Status parameter is Buckled.

⇒ **If not Buckled**

4.1. Ignition OFF.

4.2. Verify the SIR system is disabled.

4.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

4.4. Test for infinite resistance between the signal circuit terminal 2 and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If Buckled**

5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the low reference circuit terminal 1.
6. Verify the appropriate scan tool Seat Belt Status parameter is Unbuckled.

⇒ **If not Unbuckled**

6.1. Ignition OFF.

6.2. Verify the SIR system is disabled.

6.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module, ignition ON.

6.4. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇓ If less than 1 V

6.5. Test for less than 2 Ω in the signal circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If Unbuckled**

7. Test or replace the B153P Front Seat Belt buckle - Passenger.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Front Seat Belt Buckle Replacement on page 8-363*
- Control Module References for Restraints Control Module replacement, programming, and setup

Symptoms - Seat Belts

Object-ID=5324950 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Note: Review the seat belt system description and operation in order to familiarize yourself with the system and how it functions. Refer to *Seat Belt System Description and Operation on page 8-424*.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the seat belt system.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to Testing for Intermittent Conditions and Poor Connections.

Symptom List

Refer to the following symptom diagnostic procedure in order to diagnose the symptom:

- *Seat Belt Indicator Malfunction - Driver on page 8-356*
- *Seat Belt Indicator Malfunction - Passenger on page 8-358*

Seat Belt Does Not Retract

Object-ID=5046509 Owner=Hughes, Jim LMD=23-Apr-2018 LMB=McMillan, Tim

1. Grasp the seat belt and pull it out slowly and evenly from the retractor, do that in 15-25mm (5/8-1in) increments, continuing until the seat belts entire length has been pulled out.
2. Release the seat belt, and allow the retractor to slowly retract the full length of the seat belt. The seat belt must retract without any additional help.
3. Additionally, make sure, that the seat belt can be stopped any time while retracting and then resumed while being released again. This must also be possible in all retracting positions.
4. Should problems be observed in step 3, perform the first two steps 2 more times.
5. Should the retractor, after performing these steps, not function freely and properly, it is to be replaced with a new part.

Object-ID=5661820 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

Seat Belt Guide Adjuster Stuck in Full Down Position

Cause	Correction
Definition: This potential condition will not impact the designed performance or reliability of the vehicle.	
If equipped, the seat belt guide adjuster cannot be raised because the seat belt is locked. This may occur if the seat belt guide adjuster is activated too quickly.	If this condition occurs, pull the seat belt out **51 to 76 mm (2 to 3 in)**, or to full extension if necessary, with moderate force and then allow the seat belt to retract before attempting to raise the seat belt guide adjuster again. Repeat if necessary.

Seat Belt Retractor Does Not Function Properly or is Inoperative - Automatic Locking Retractor

Object-ID=5661821 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

Seat Belt Retractor Does Not Function Properly or is Inoperative – Automatic Locking Retractor

Cause	Correction
Definition: Do not replace the seat belt retractor for these conditions until first attempting to disengage the locking mechanism by reviewing the potential causes and the corrections listed below. Seat belts equipped with ALR are commonly found on front and rear passenger seating positions.	
Automatic Locking Retractor (ALR) When the seat belt is pulled out to full extension, it automatically converts the seat belt retractor into a cinch-down mode (i.e. ALR) which causes the seat belt to lock. This is typically used to tightly secure a child seat to the vehicle. Inadvertent activation of the ALR may occur if the seat belt is pulled out to full extension during regular operation.	The ALR mode of operation is automatically cancelled when the seat belt is released and returned to its stowed position. This is the designed intent and indicates the seat belt is functioning properly.
Inadvertent activation of the seat belt retractor ALR system may also occur with the use of a seat belt extender.	Ensure the seat belt extender is appropriately sized for the vehicle and seating position.
Performance Vehicles The ALR locking mode is also provided at the driver's position of some performance vehicles, as a unique feature. With the ALR active, the operator is snugly cinched into the seat and kept firmly in place during high G-force driving maneuvers.	The ALR mode of operation is automatically cancelled when the seat belt is released and returned to its stowed position. This is the designed intent and indicates the seat belt is functioning properly.

Seat Belt Retractor Does Not Function Properly or is Inoperative - Overspool Lock

Object-ID=5661823 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

Seat Belt Retractor Does Not Function Properly or is Inoperative – Overspool Lock

Cause	Correction
Definition: Do not replace the seat belt retractor for these conditions until first attempting to disengage the locking mechanism by reviewing the potential causes and the corrections listed below.	
Overspool Lock The seat belt retractor may exhibit an unintentional locking condition if the seat belt retracts to the stowed position too rapidly. This may also occur if the seat belt guide adjuster (if equipped) is activated too quickly or while rapidly folding a seat up or down. This may result in the seat belt retractor locking with the seat belt fully stowed.	If this condition occurs, pull the seat belt out **51 to 76 mm (2 to 3 in)**, or to full extension if necessary, with moderate force and then allow the seat belt to retract before attempting to use the seat belt again. Repeat if necessary.
Rear Seat with Integrated Seat Belt Retractor This condition may also exist on vehicles with seat belts integrated into the rear seat back and may present itself as a seat back locked in the folded down position.	Pull up on the seat back with moderate force as far as it will go, and then push all the way down on the seat back before attempting to raise the seat back again. Repeat if necessary.

Seat Belt Retractor Does Not Function Properly or is Inoperative - Vehicle Sensing

Object-ID=5661824 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

Seat Belt Retractor Does Not Function Properly or is Inoperative – Vehicle Sensing

Cause	Correction
Definition: Do not replace the seat belt retractor for these conditions until first attempting to disengage the locking mechanism by reviewing the potential causes and the corrections listed below.	
This type of intermittent locking occurs in response to the vehicle under the following conditions: 1. The vehicle changes speed or direction abruptly (the vehicle goes into rapid acceleration, deceleration, or aggressive cornering). 2. When the vehicle is parked on an incline (fore-aft or side-to-side). 3. Rough road conditions where the seat belt retractor sensor mechanism is bounced into a locked condition. In all of these conditions, as long as tension is maintained on the seat belt, the seat belt retractor will stay locked. When tension is released, the seat belt retracts slightly, the lock bar disengages, and the seat belt should return to normal function.	This is a normal operating characteristic of the seat belt retractor system. This is the designed intent and indicates the seat belt is functioning properly.

Seat Belt Retractor Does Not Function Properly or is Inoperative - Belt Sensing

Object-ID=5661825 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

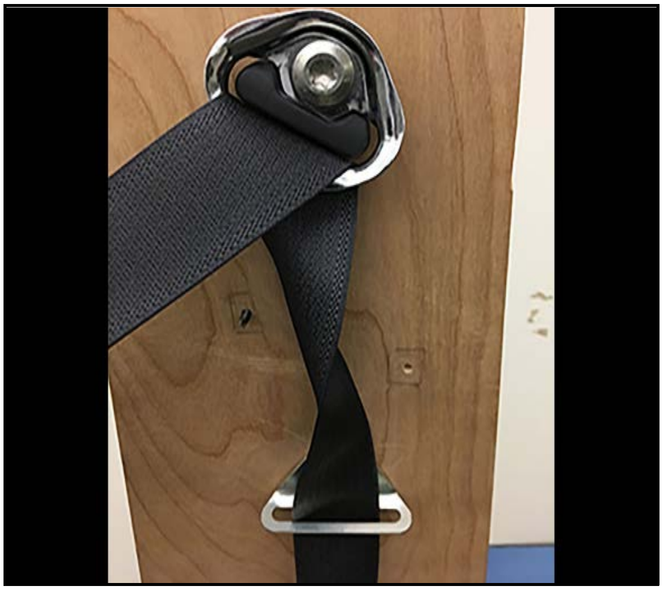
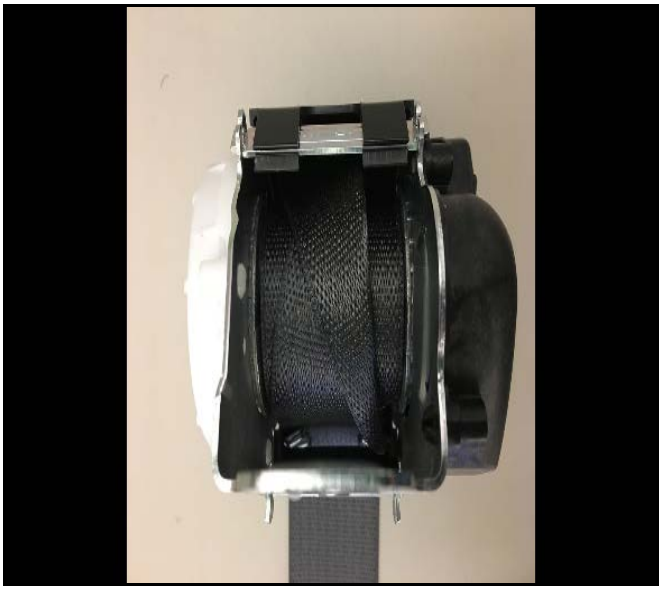
Seat Belt Retractor Does Not Function Properly or is Inoperative – Belt Sensing

Cause	Correction
Definition: Do not replace the seat belt retractor for these conditions until first attempting to disengage the locking mechanism by reviewing the potential causes and the corrections listed below.	
The seat belt retractor may lock intermittently in response to a rapid extraction of the seat belt during use. When the seat belt reels out at an accelerated rate and maintains tension, the seat belt retractor goes into a lock mode until tension is released.	This is a normal operating characteristic of the seat belt retractor system. This is the designed intent and indicates the seat belt is functioning properly.

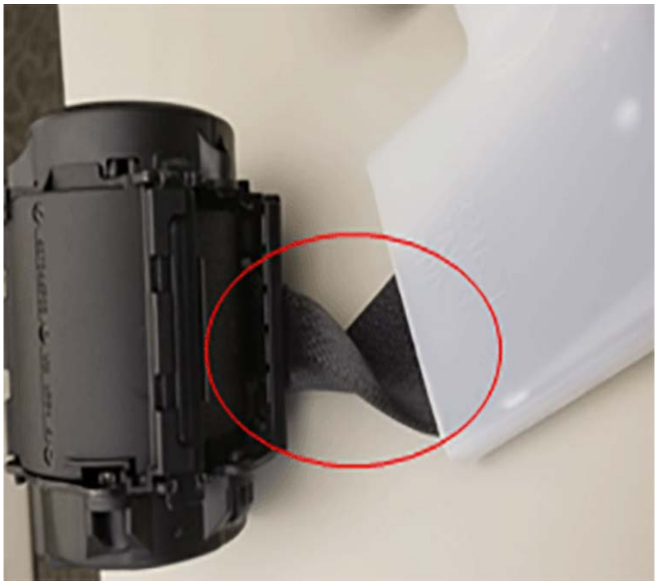
Seat Belt Retractor Does Not Function Properly or is Inoperative - Belt Twisting

Object-ID=5661826 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

Seat Belt Retractor Does Not Function Properly or is Inoperative – Belt Twisting

Cause	Correction
Definition: Do not replace the seat belt retractor for these conditions until first attempting to disengage the locking mechanism by reviewing the potential causes and the corrections listed below.	
When there is a twist in the seat belt behind the opening in the trim panel or seat back, it may prevent smooth operation of the seat belt.  5661748 1. Seat belt twisting at or before the seat belt retractor guide.  5661773 2. Seat belt twisting on the seat belt retractor.	Remove the necessary trim panels and/or seat belt bezels and inspect for seat belt twisting. The twist may be visible outside of the seat belt retractor or it may be found on the seat belt retractor. If a twist is found, attempt to correct it and reinstall the seat belt properly and without twists.

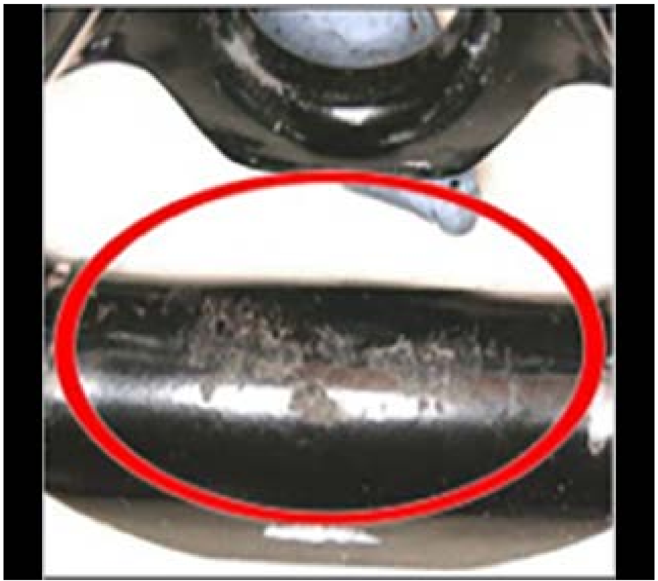
Seat Belt Retractor Does Not Function Properly or is Inoperative – Belt Twisting (cont'd)

Cause	Correction
 4960937 3. Center seat belt twisting.	

Seat Belt Retractor Does Not Function Properly or is Inoperative - Guide Contamination

Object-ID=5661827 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

Seat Belt Retractor Does Not Function Properly or is Inoperative – Guide Contamination

Cause	Correction
Definition: Do not replace the seat belt retractor for these conditions until first attempting to disengage the locking mechanism by reviewing the potential causes and the corrections listed below.	
 5661781 Slow return of the seat belt into the seat belt retractor may occur due to contamination build up on the seat belt retractor guide. Contamination buildup is primarily from external sources such as skin, make-up, clothing fibers, sunscreen, or soap.	Perform the seat belt retractor guide cleaning procedure. **Seat Belt Guide Loop Cleaning**

Object-ID=5661828 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

Noise Heard from Motorized Seat Belt Retractor

Cause	Correction
Definition: Do not replace the seat belt retractor for this condition until first verifying the source.	
Auto-tightening seat belt retractors will make an audible motor noise during seat belt tightening and release operations for 2-3 seconds after the event.	This condition is a normal operating characteristic of the motorized seat belt system. It will not impact the designed performance or reliability of the vehicle.

Object-ID=5661829 Owner=Semposki, Scott LMD=25-Apr-2022 LMB=Semposki, Scott

Seat Belt Buckle Does Not Function Properly and/or Seat Belt Warning Lamp Illuminated

Cause	Correction
Solid or Liquid Contamination A contaminant may have been spilled onto or into the seat belt buckle causing the seat belt buckle to not latch or unlatch properly and potentially illuminating the seat belt warning light. Other foreign debris from food, candy wrappers, paper, or coins may also contribute to this condition.	**Caution:** SIO-ID=5679976 LMD=24-Nov-2020 Do not insert anything other than the seat belt latch plate into the seat belt buckle. Do not attempt to remove debris from the seat belt buckle with a tool. Do not try to wash out a seat belt buckle to remove a contaminant. Damage to the seat belt buckle may occur if any of these options are used. 1. Inspect the seat belt buckle for any contaminants or debris with a light shining on the latch plate insertion area. 2. If any contaminants or debris are observed, try to vacuum out the item(s). After the contaminants or debris is removed, latch and unlatch the seat belt. If the system functions properly, do not replace the seat belt buckle. 3. If the condition has not been corrected, inspect the seat belt buckle for further contaminants. If further contamination is found, replace the seat belt buckle. 4. If further diagnosis is required, continue with the seat belt system inspection. *Repairs and Inspections Required After a Collision on page 8-360*

Seat Belt Indicator Malfunction - Driver

Object-ID=5342472 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal — Terminal 2 @ B153D Front Seat Belt Buckle - Driver	1	2	2	—
Low Reference — Terminal 1 @ B153D Front Seat Belt Buckle - Driver	—	2	—	—
1. Seat Belt Reminder Indicator = Always On 2. Seat Belt Reminder Indicator = Always Off				

Circuit/System Description

For an overview of the component/system, refer to: *Seat Belt System Description and Operation on page 8-424*

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 12 V.
Low Reference	Grounded through the control module.

Component	Description
B153D Front Seat Belt Buckle - Driver	When the seat belt is unbuckled the switch is closed, and when the seat belt is buckled the switch is open.
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Reference Information

Schematic Reference

Seat Belt Schematics on page 8-345

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

Note: Refer to: *SIR Service Precautions on page 8-483*

1. Ignition » On / Vehicle » In Service Mode
2. Perform the appropriate scan tool control function: All Indicators @ P16 Instrument Cluster » On and Off

   Verify the component turns On and Off: Seat Belt Reminder Indicator

⇒ **If the component does not turn On and Off**

Replace the appropriate component: P16 Instrument Cluster

⇓ **If the component turns On and Off**

3. Operate the component: B153D Front Seat Belt Buckle - Driver » Buckled

   Verify the scan tool parameter: Driver Seat Belt Status = Buckled

⇒ **If not the specified state**

Refer to: Circuit/System Testing

⇓ **If the specified state**

4. Operate the component: B153D Front Seat Belt Buckle - Driver » Unbuckled

   Verify the scan tool parameter: Driver Seat Belt Status = Unbuckled

⇒ **If not the specified state**

Refer to: Circuit/System Testing

⇓ **If the specified state**

5. The condition is not currently present and may be an intermittent fault.

Circuit/System Testing

- Refer to: *SIR Service Precautions on page 8-483*
- Refer to: *SIR Disabling and Enabling on page 8-481*.
- Inspect the terminals of the following components and connectors for damage or corrosion and repair or replace as necessary:
  - B153D Front Seat Belt Buckle - Driver
  - B153D Front Seat Belt Buckle - Driver& Harness Connector
  - K36 Inflatable Restraint Sensing and Diagnostic Module
  - K36 Inflatable Restraint Sensing and Diagnostic Module & Harness Connector

1. Ignition » On / Vehicle » In Service Mode
2. Disconnect the electrical connector: B153D Front Seat Belt Buckle - Driver
3. Test for less than 5 Ω between the test points: Low Reference terminal 1 & Ground

⇒ **If 5 Ω or greater**

3.1. Before attempting these procedures, the SIR system must be disabled.

3.2. Disconnect the electrical connector: K36 Restraints Control Module

3.3. Test for less than 2 Ω between the test points: Low Reference circuit terminal 1 @ B153D Front Seat Belt Buckle - Driver & The other end of the circuit

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K36 Restraints Control Module

⇓ **If less than 5 Ω**

4. Ignition » On / Vehicle » In Service Mode
5. Verify the scan tool parameter: Driver Seat Belt Status = Buckled

⇒ **If not the specified state**

5.1. Ignition/Vehicle » Off

5.2. Before attempting these procedures, the SIR system must be disabled.

5.3. Disconnect the electrical connector: K36 Restraints Control Module

5.4. Test for infinite resistance between the test points: Signal circuit terminal 2 @ Component harness & Ground

⇒ If less than infinite resistance » Repair the short to ground on the circuit.

⇒ If infinite resistance » Replace the component: K36 Restraints Control Module

⇓ **If the specified state**

6. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 2 & Low Reference circuit terminal 1
7. Verify the scan tool parameter: Driver Seat Belt Status = Unbuckled

⇒ **If not the specified state**

7.1. Ignition/Vehicle » Off & Remove » Jumper wire(s)

7.2. Before attempting these procedures, the SIR system must be disabled.

7.3. Disconnect the electrical connector: K36 Restraints Control Module

7.4. Ignition » On / Vehicle » In Service Mode

7.5. Test for less than 1 V between the test points: Signal circuit terminal 2 @ Component harness & Ground

⇒ If 1 V or greater » Repair the short to voltage on the circuit.

⇓ If less than 1 V

7.6. Ignition/Vehicle » Off

7.7. Test for less than 2 Ω between the test points: Signal circuit terminal 2 @ Component harness & The other end of the circuit

⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

⇒ If less than 2 Ω » Replace the component: K36 Restraints Control Module

⇓ **If the specified state**

8. Test or replace the component: B153D Front Seat Belt Buckle - Driver

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- *Front Seat Belt Buckle Replacement on page 8-363*
- For control module replacement, programming, and setup refer to: Control Module References

Seat Belt Indicator Malfunction - Passenger

Object-ID=5343980 Owner=Bunker, Timothy LMD=18-Jul-2022 LMB=Bunker, Timothy

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

Diagnostic Fault Information

Circuit	Circuit Function	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal — Terminal 2 @ B153P Front Seat Belt Buckle - Passenger	Signal	1	2	2	—
Low Reference — Terminal 1 @ B153P Front Seat Belt Buckle - Passenger	Low Reference	—	2	—	—

Circuit/System Description

For an overview of the component/system, refer to: *Seat Belt System Description and Operation on page 8-424*

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 12 V.
Low Reference	Grounded through the control module.

Component	Description
A103 Roof Console	Some buttons and indicators are hardwired, some functions use serial data communication.
B153 Seat Belt Buckle	When the seat belt is unbuckled the switch is closed, and when the seat belt is buckled the switch is open.
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact.

Reference Information

Schematic Reference

Seat Belt Schematics on page 8-345

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike. Refer to Testing for Intermittent Conditions and Poor Connections.

1. Ignition ON, Vehicle in service mode.
2. Verify there are no related DTCs set.

⇒ **If related DTCs are set**

Refer to: Diagnostic Trouble Code (DTC) List - Vehicle

⇓ **If no related DTCs are set**

3. Verify the passenger seat belt indicator Illuminates once passenger seat is occupied.

⇒ **If the passenger seat belt indicator does not illuminate**

Replace the component: A103 Roof Console.

⇓ **If the passenger seat belt indicator illuminates**

4. Verify the passenger seat belt indicator turns off after buckling the passenger seat belt with passenger seat occupied.

⇒ **If the passenger seat belt indicator does not turn off**

Refer to Circuit/System Testing.

⇓ **If the passenger seat belt indicator turns off**

5. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note :

- Refer to: *SIR Service Precautions on page 8-483*
- Refer to: *SIR Disabling and Enabling on page 8-481*.
- Inspect the terminals of the following components and connectors for damage or corrosion and repair or replace as necessary:
  - – A103 Roof Console
  - – B153 Seat Belt Buckle
  - – K36 Restraints Control Module
  - – Inline Harness Connector
- The connector position assurance (CPA) should seat with an audible and/or tactile click. The CPA isolates the shorting-bars within the connector allowing the deployment circuit to operate properly.

1. Ignition OFF, disconnect the harness connector at the appropriate B153 Seat Belt Buckle. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 5 Ω between the low reference circuit terminal 1 and ground.

⇒ **If 5 Ω or greater**

2.1. Ignition OFF.

2.2. Verify the SIR system is disabled.

2.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

2.4. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If less than 5 Ω**

3. Ignition ON.
4. Verify the appropriate scan tool Seat Belt Status parameter is Buckled.

⇒ **If not Buckled**

   4.1. Ignition OFF.
   4.2. Verify the SIR system is disabled.
   4.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
   4.4. Test for infinite resistance between the signal circuit terminal 2 and ground.

   ⇒ If less than infinite resistance, repair the short to ground on the circuit.

   ⇒ If infinite resistance, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If Buckled**

5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the low reference circuit terminal 1.
6. Verify the appropriate scan tool Seat Belt Status parameter is Unbuckled.

⇒ **If not Unbuckled**

   6.1. Ignition OFF.
   6.2. Verify the SIR system is disabled.
   6.3. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module, ignition ON.
   6.4. Test for less than 1 V between the signal circuit and ground.

   ⇒ If 1 V or greater, repair the short to voltage on the circuit.

   ⇓ If less than 1 V

   6.5. Test for less than 2 Ω in the signal circuit end to end.

   ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

   ⇒ If less than 2 Ω, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If Unbuckled**

7. Test or replace the B153P Front Seat Belt buckle - Passenger.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- Front Seat Belt Buckle Replacement on page 8-363
- For control module replacement, programming, and setup refer to: Control Module References

Seat Belt Service Precautions

Object-ID=5046512 Owner=Hughes, Jim LMD=23-Apr-2018 LMB=McMillan, Tim

Important: If the vehicle has been in a collision, refer to Repairs and Inspections Required After a Collision on page 8-360 for additional information.

- Do not bleach or dye the seat belt webbing. Use only the following items in order to clean the seat belt webbing:
  – A mild soap and water solution
  – A soft brush or cloth
- Keep sharp edges and damaging objects away from the seat belts. Avoid bending or damaging any part of the seat belt buckle or the latch plate. Replace any seat belts which are cut or damaged in any way.
- Use only the correct seat belt anchor bolts/screws and tighten the anchor bolts/screws to the correct torque value. Refer to Fastener Specifications on page 8-341. When installing seat belt anchor bolts, start the bolt by hand to ensure that the bolt is threaded straight.
- Verify that the replacement part number is correct for the vehicle at that seating position. Do not substitute a seat belt from a different seating position.

Repair Instructions

Repairs and Inspections Required After a Collision

Object-ID=5046514 Owner=Hughes, Jim LMD=23-Apr-2018 LMB=McMillan, Tim

Warning: SIO-ID=2052220 LMD=24-Jan-2008 ***Restraint systems can be damaged in a collision. To help avoid injury and ensure that all parts in need of replacement are replaced:***

- ***Replace any seat belt system that was in use during the collision serious enough to deploy any automatic restraint device such as air bags and seat belt pretensioners. This not only includes seat belt systems in use by people of adult size, but seat belt systems used to secure child restraints, infant carriers and booster seats, including LATCH system and top tether anchorages.***
- ***Replace any seat belt system that has torn, worn, or damaged components. This not only includes adult seat belt systems, but built-in child restraints and LATCH system components, if any.***
- ***Replace any seat belt system if you observe the words "REPLACE" or "CAUTION", or if a yellow tag is visible. Do not replace a seat belt if only the child seat caution label is visible.***
- ***Replace any seat belt system if you are doubtful about its condition. This not only includes adult seat belt systems, but built-in child restraints, LATCH system components, and any restraint system used to secure infant carriers, child restraints, and booster seats.***

  Do NOT replace single seat belt system components in vehicles that have been in a collision as described above. Always replace

the entire seat belt system with the buckle, guide and retractor assembly, which includes the latch and webbing material.

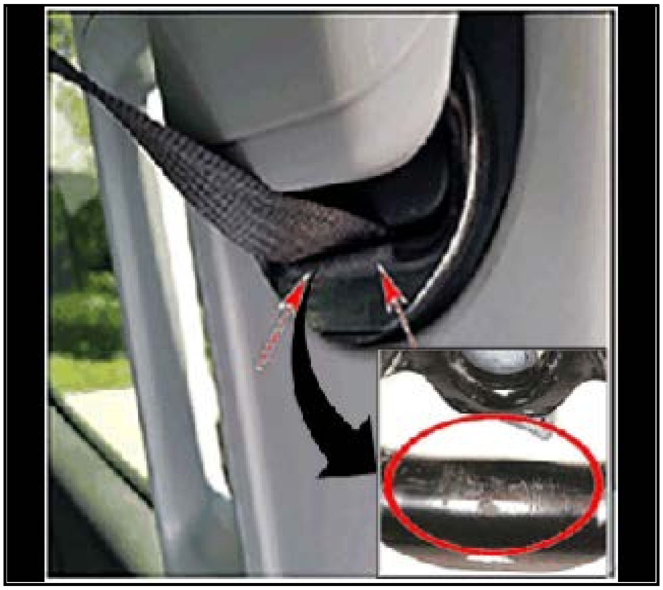
After a minor collision where no automatic restraint device was deployed, seat belt system replacement may not be necessary, unless some of the parts are torn, worn, or damaged.

Seat Belt Retractor Guide Cleaning

Object-ID=5661831 Owner=Palkovitz, John LMD=01-Dec-2020 LMB=McMillan, Tim

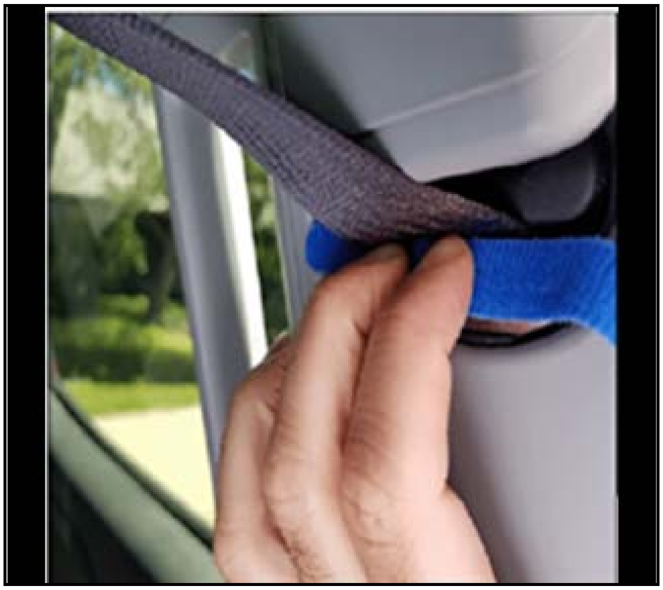
Warning: SIO-ID=5679975 LMD=24-Nov-2020 ***Do not use any liquid cleaners, solvents, sandpaper, steel wool, or Scotch Brite pads to clean the seat belt retractor guide. These materials will damage the seat belt retractor guide and contaminate the seat belt retractor with liquid or metal shavings, which could result in a seat belt malfunction or personal injury.***

Cleaning Procedure



5661783

1. With the key in the off position, lift the seat belt up to expose the seat belt retractor guide.

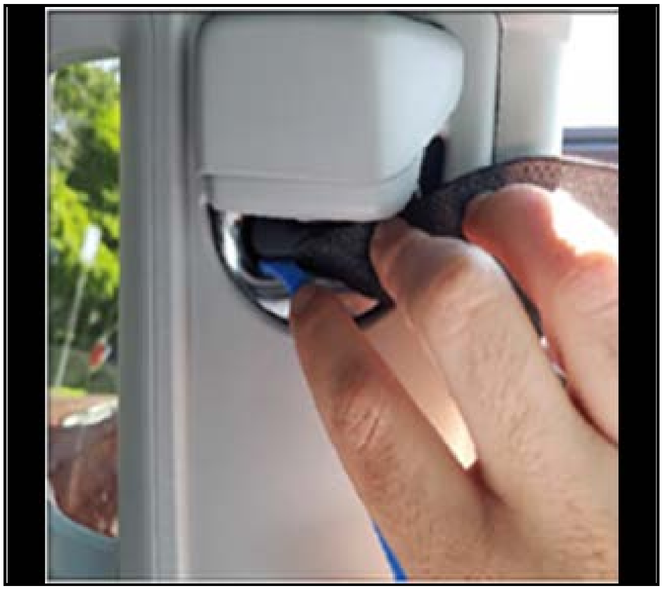


5661788

Note:

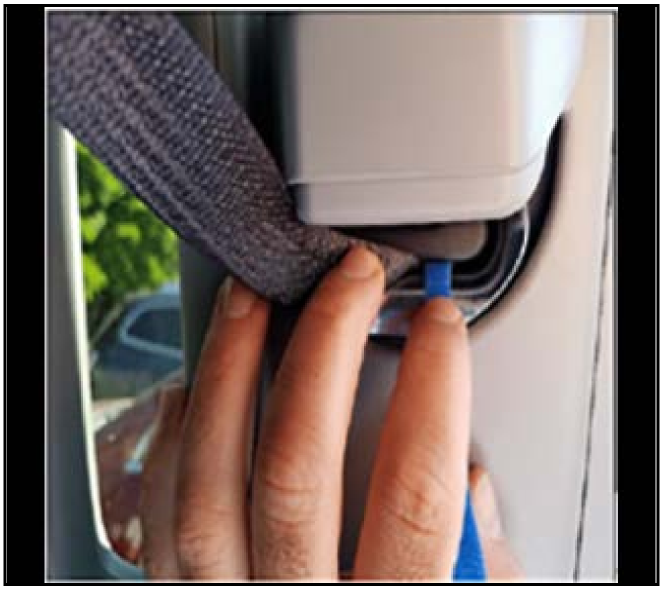
- Use the hook side of hook and loop material or equivalent.
- The hook material should be plastic. DO NOT use metal hook and loop material. DO NOT use the loop side during this procedure.

2. Using the plastic hook side of a hook and loop material strip, gently rub the seat belt retractor guide and remove the contamination buildup.



5661789

3. Slightly move the seat belt to one side of the seat belt retractor guide and continue to gently clean the guide surface.



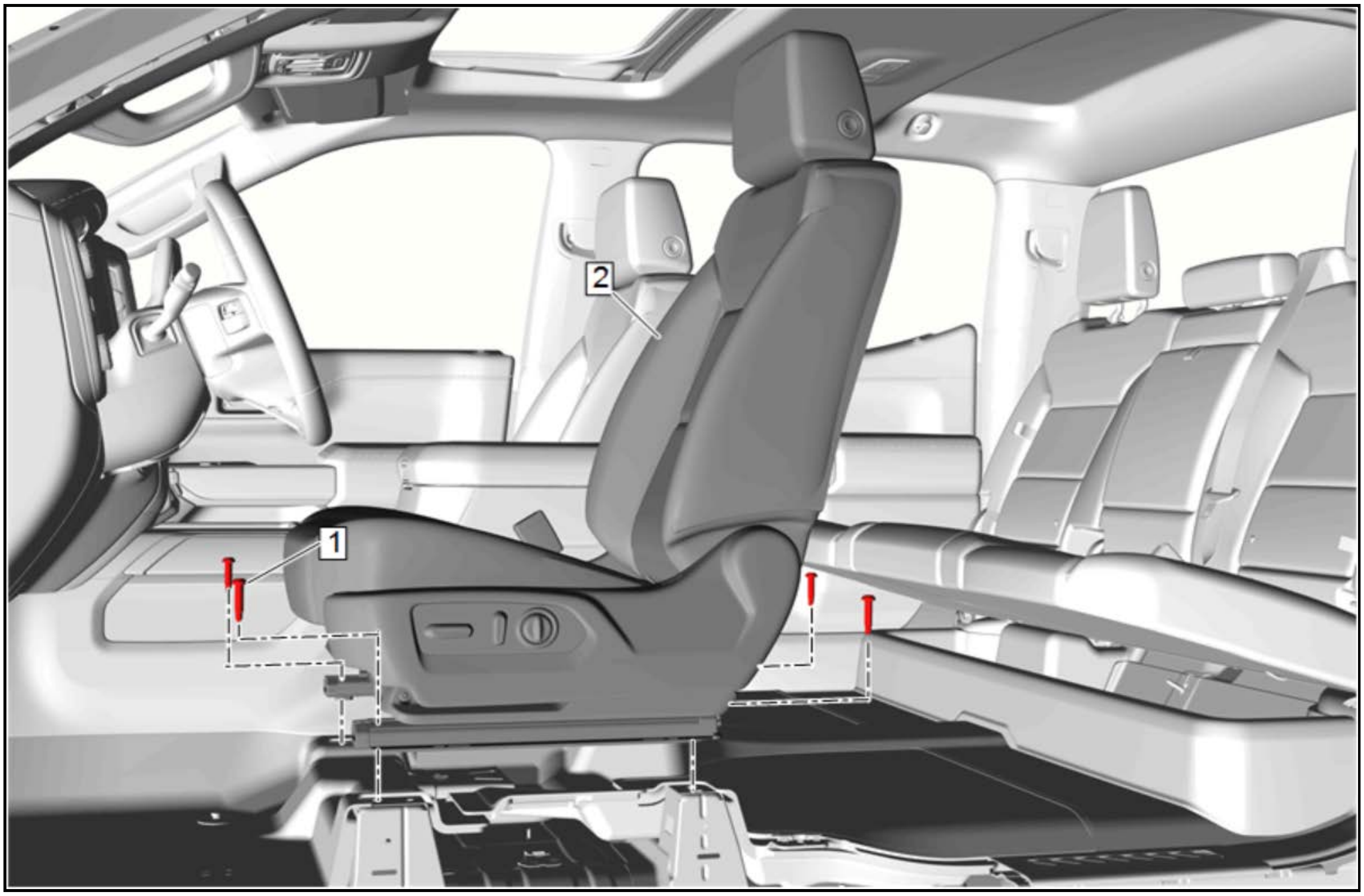
5661791

4. Slightly move the seat belt to the other side of the seat belt retractor guide and continue to gently clean the guide surface.
5. Verify that seat belt retraction has improved once cleaning is complete.

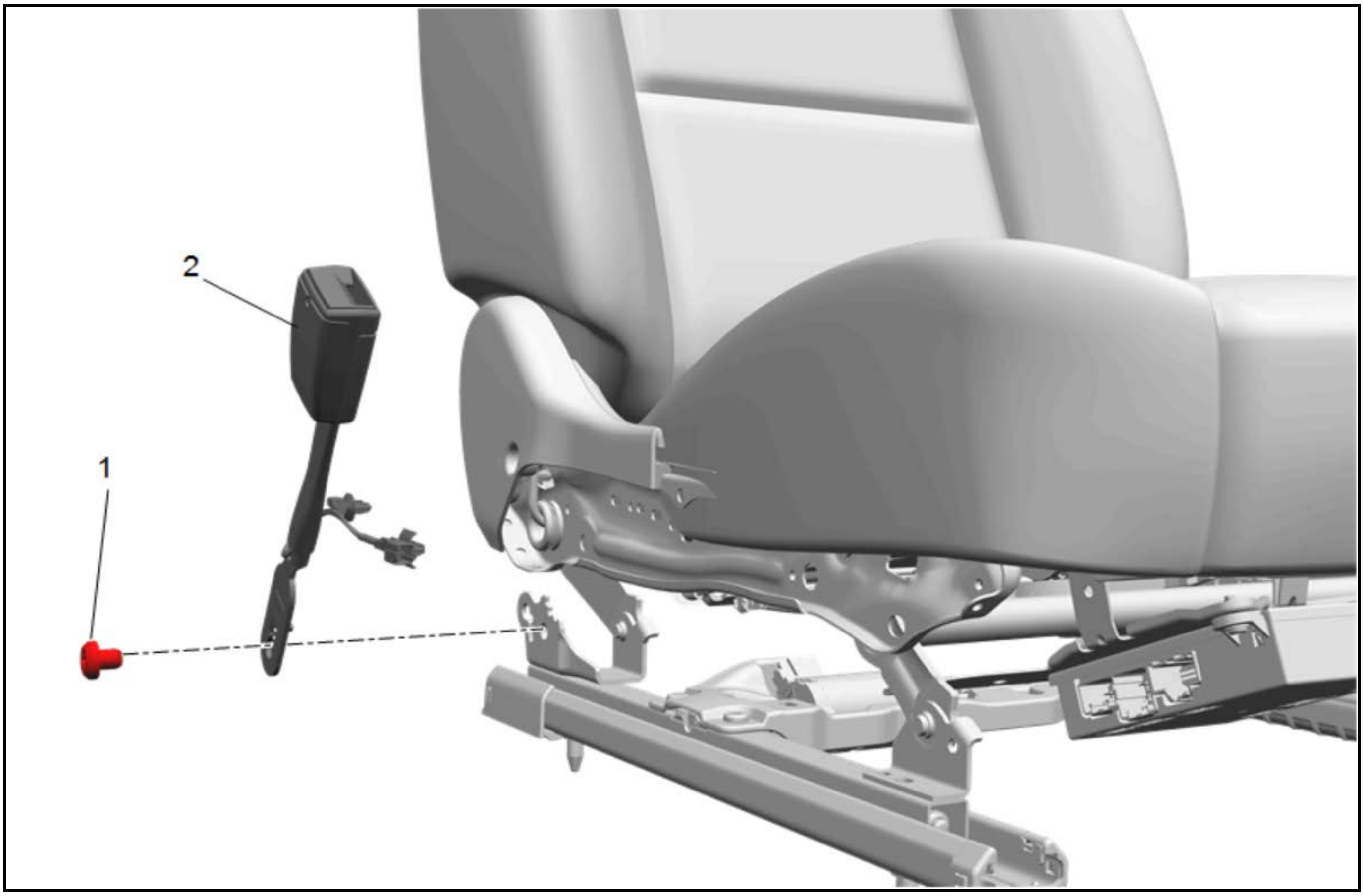
Front Seat Belt Buckle Replacement

Object-ID=5640805 Owner=Palkovitz, John LMD=10-Aug-2020 LMB=McMillan, Tim

Removal Procedure



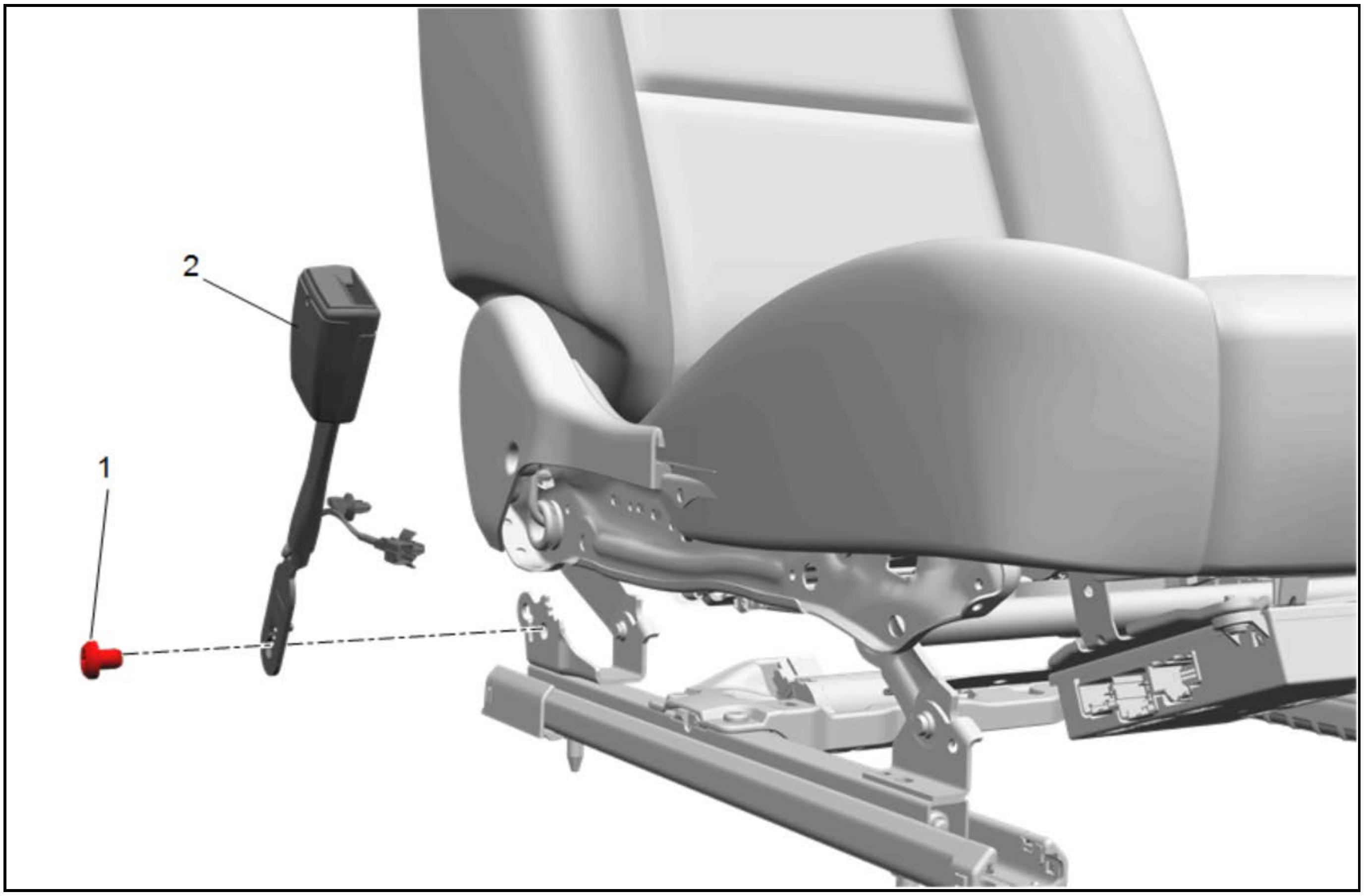
1. Front Seat (2) » Remove



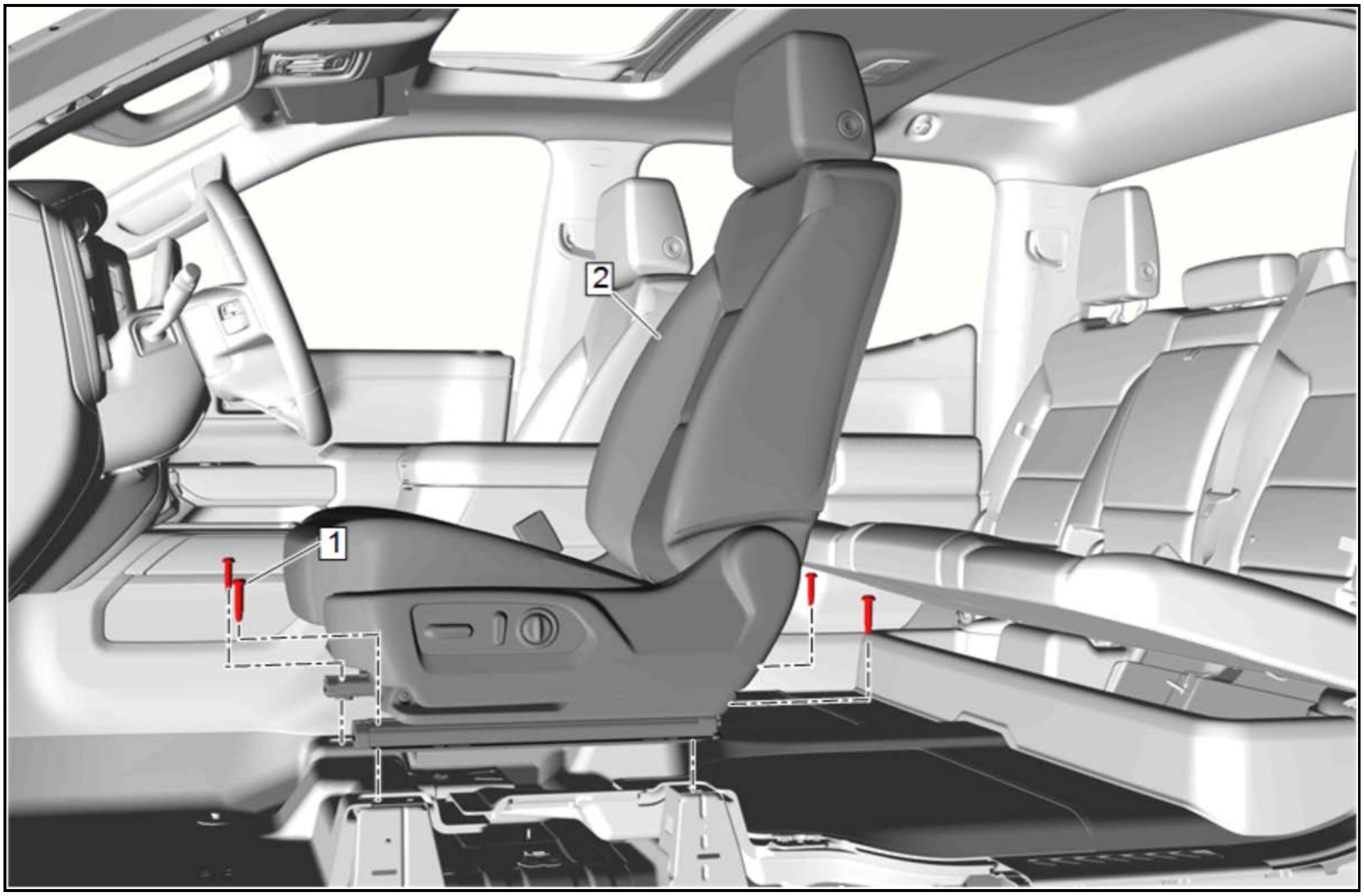
5000985

2. Front Seat Belt Buckle Bolt (1) » Remove
3. Disconnect the electrical connector.
4. Front Seat Belt Buckle (2) » Remove

Installation Procedure



1. Front Seat Belt Buckle (2) » Install
2. Connect the electrical connector.
3. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    3.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    3.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    3.3. Apply thread locking adhesive to the external threads of the component. *Adhesives, Fluids, Lubricants, and Sealers on page 8-343*
    3.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
4. Front Seat Belt Buckle Bolt (1) » Install and tighten — *Fastener Specifications on page 8-341*



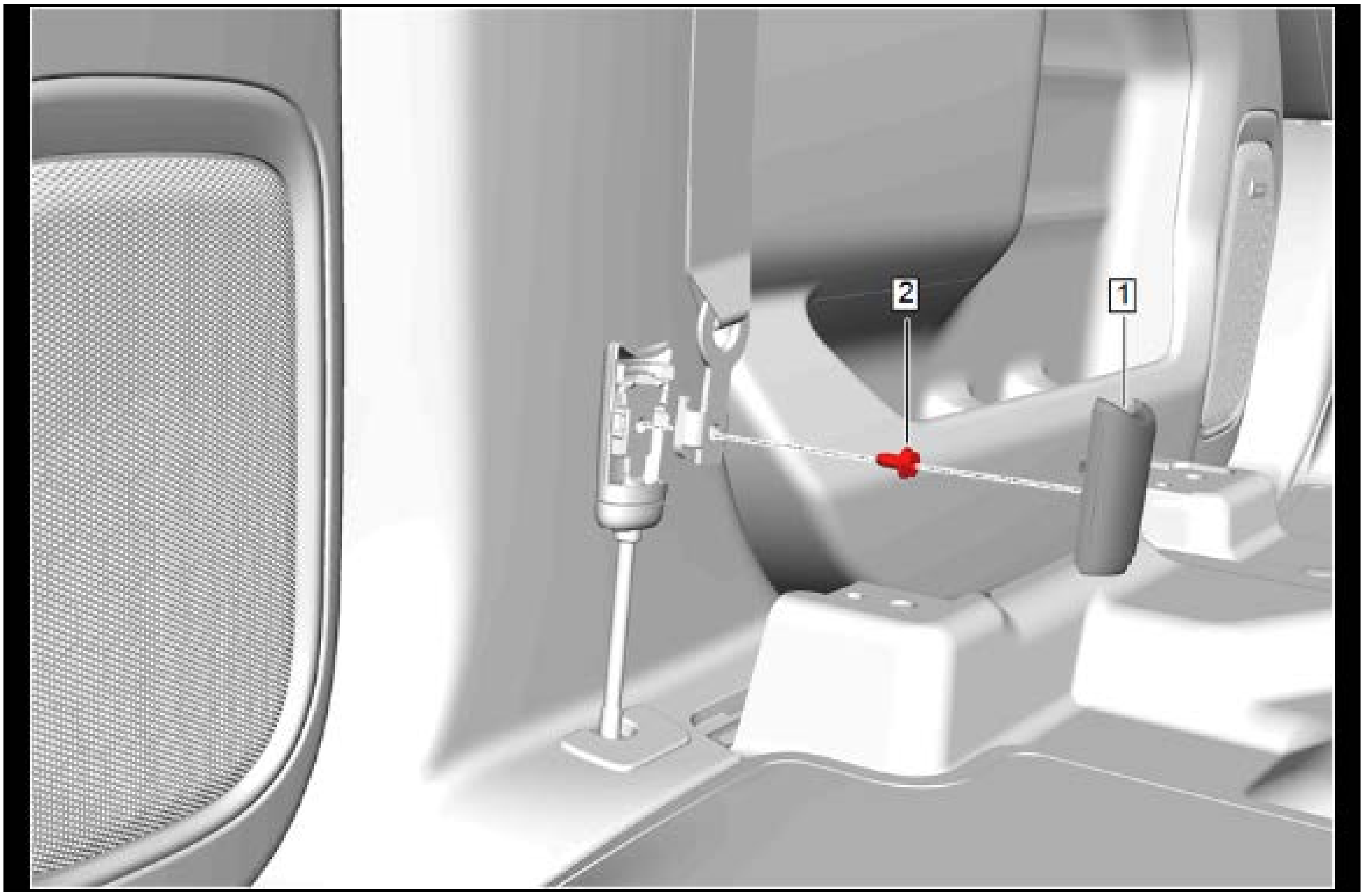
5. Front Seat (2) » Install

Front Seat Belt Opening Bezel Replacement (Front Belt)

Object-ID=5641071 Owner=Palkovitz, John LMD=10-Nov-2021 LMB=Dwamena, Terrance

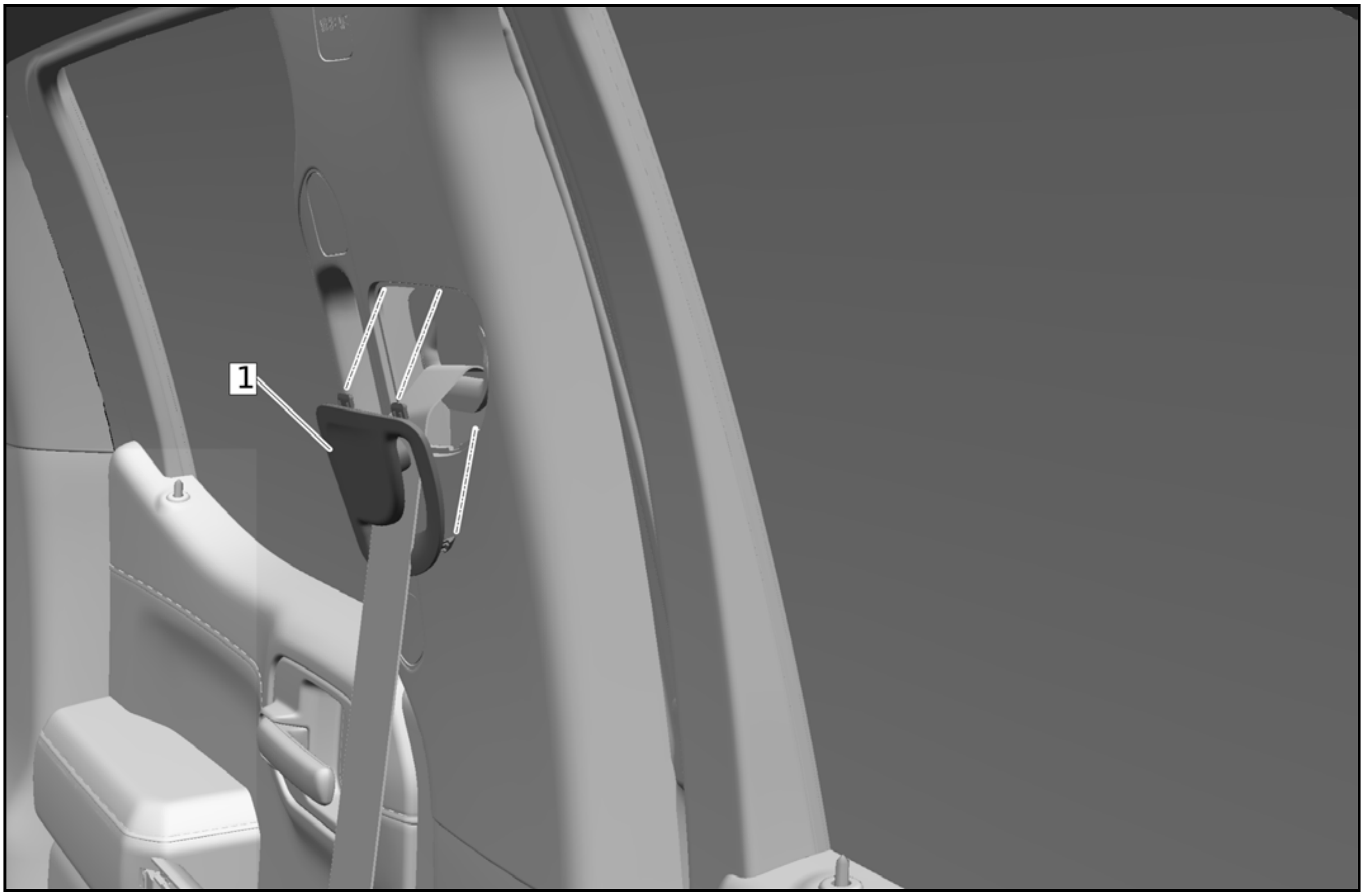
Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*



5641062

2. Front Seat Belt Anchor Plate Tensioner Cover (1) » Remove
3. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Remove

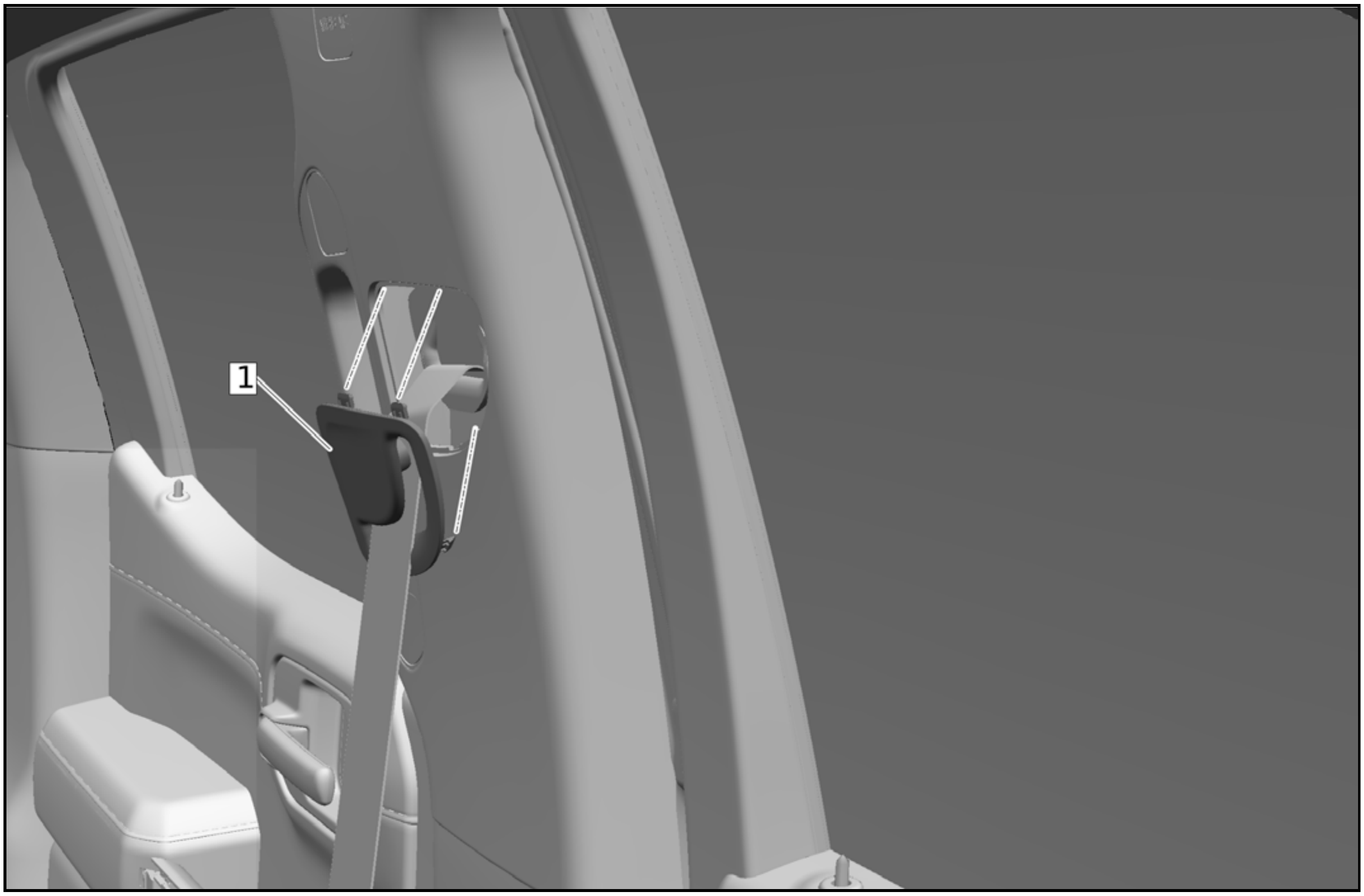


4. Using a suitable plastic trim tool, release the retaining tabs.

   Note: Feed the front seat belt and anchor plate through the front seat belt opening bezel to remove.

5. Front Seat Belt Opening Bezel (1) » Remove

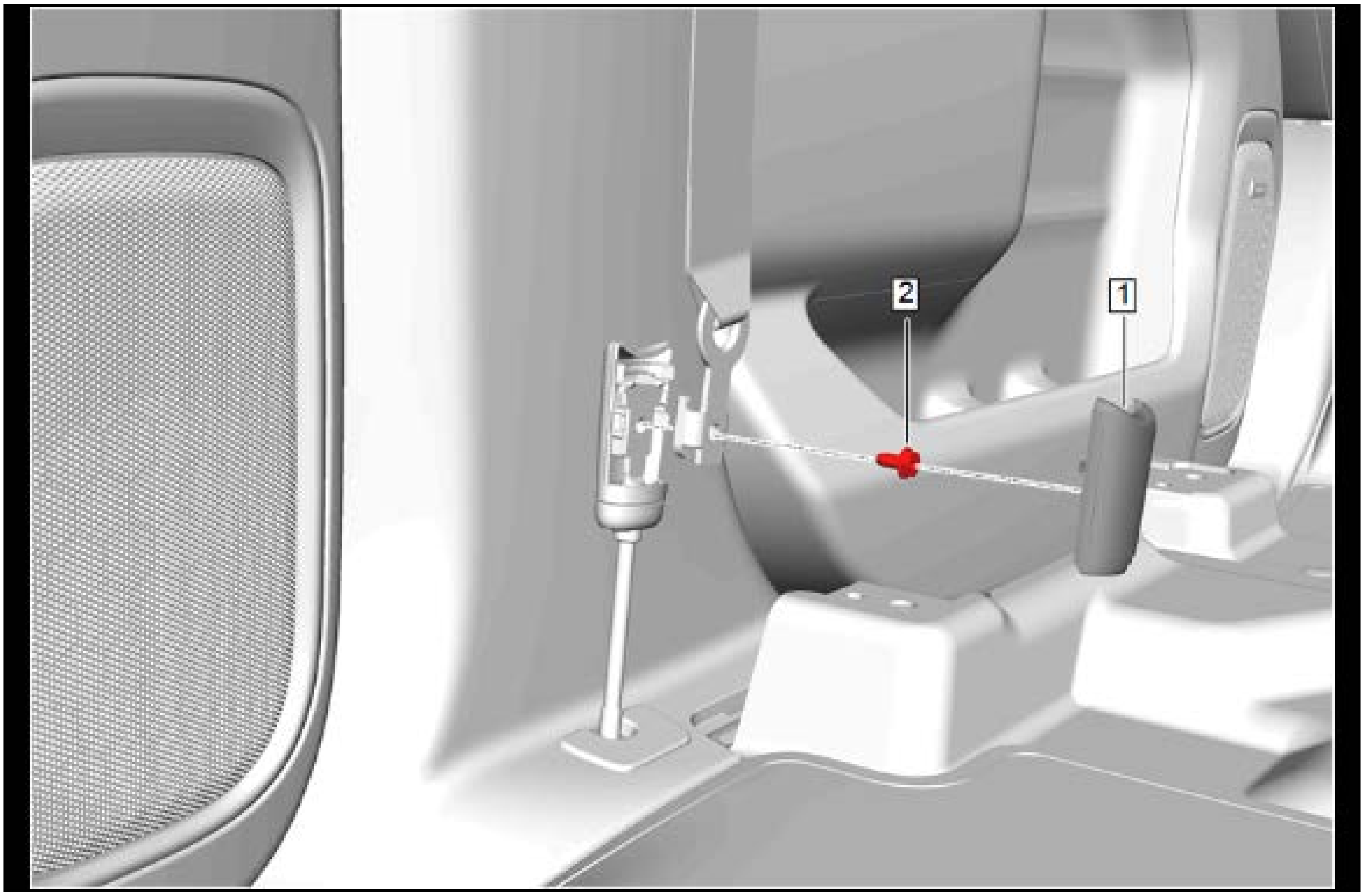
Installation Procedure



5424999

Note: Feed the front seat belt and anchor plate through the front seat belt opening bezel to install.

1. Front Seat Belt Opening Bezel (1) » Install

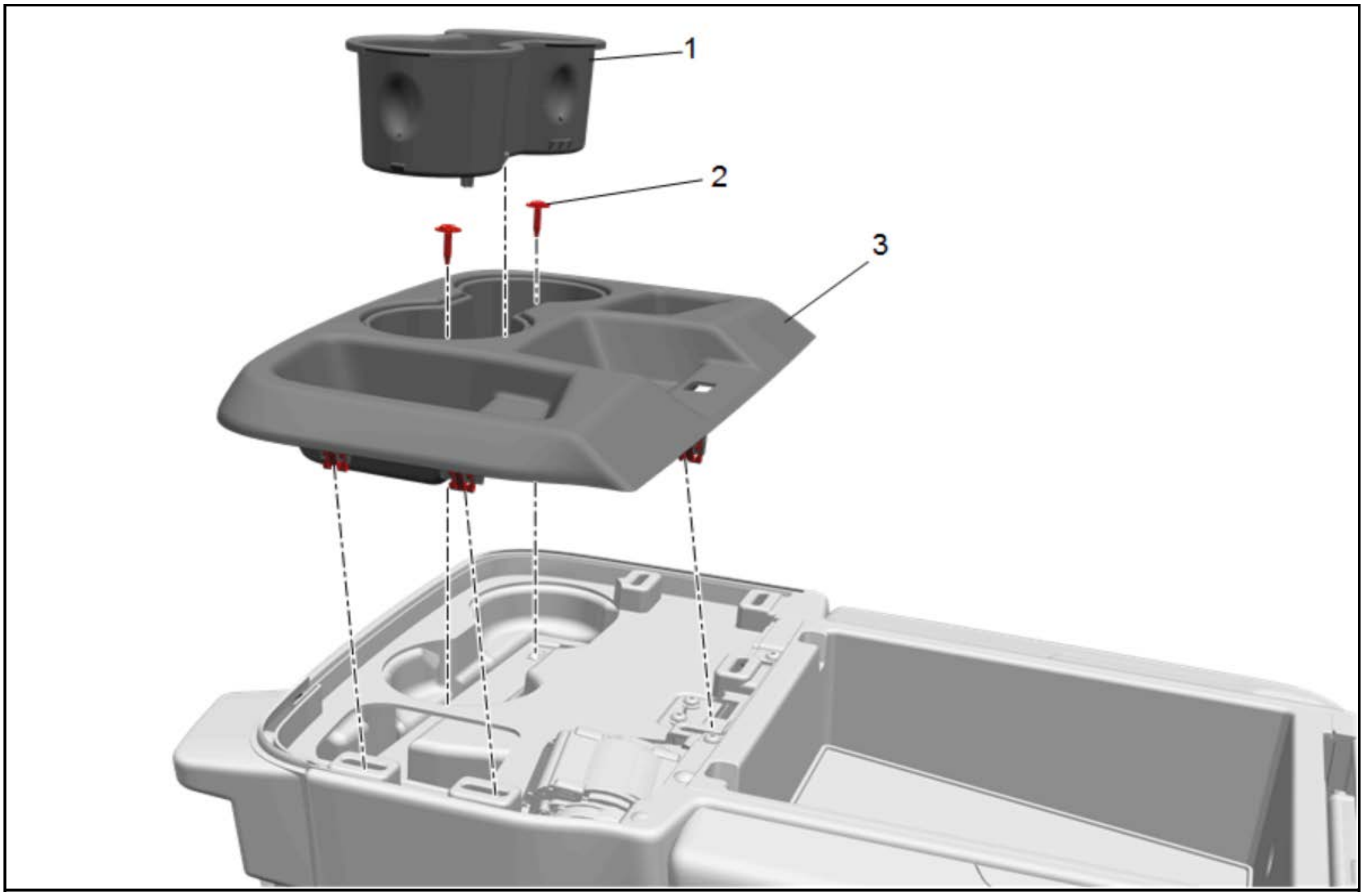


2. If NEW threaded components are being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded components are reused, prepare the threaded components using the following steps:
   2.1. Remove any loose cured adhesive from the external threads of the components using a lint free cloth.
   2.2. Thread the cleaned components into the internal mating threads and remove to loosen trapped cured adhesive.
   2.3. Apply thread locking adhesive to the external threads of the components. *Adhesives, Fluids, Lubricants, and Sealers on page 8-432*
   2.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
3. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Install and tighten — *Fastener Specifications on page 8-427*
4. Front Seat Belt Anchor Plate Tensioner Cover (1) » Install
5. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

Front Seat Belt Opening Bezel Replacement (Center Belt with Storage Armrest)

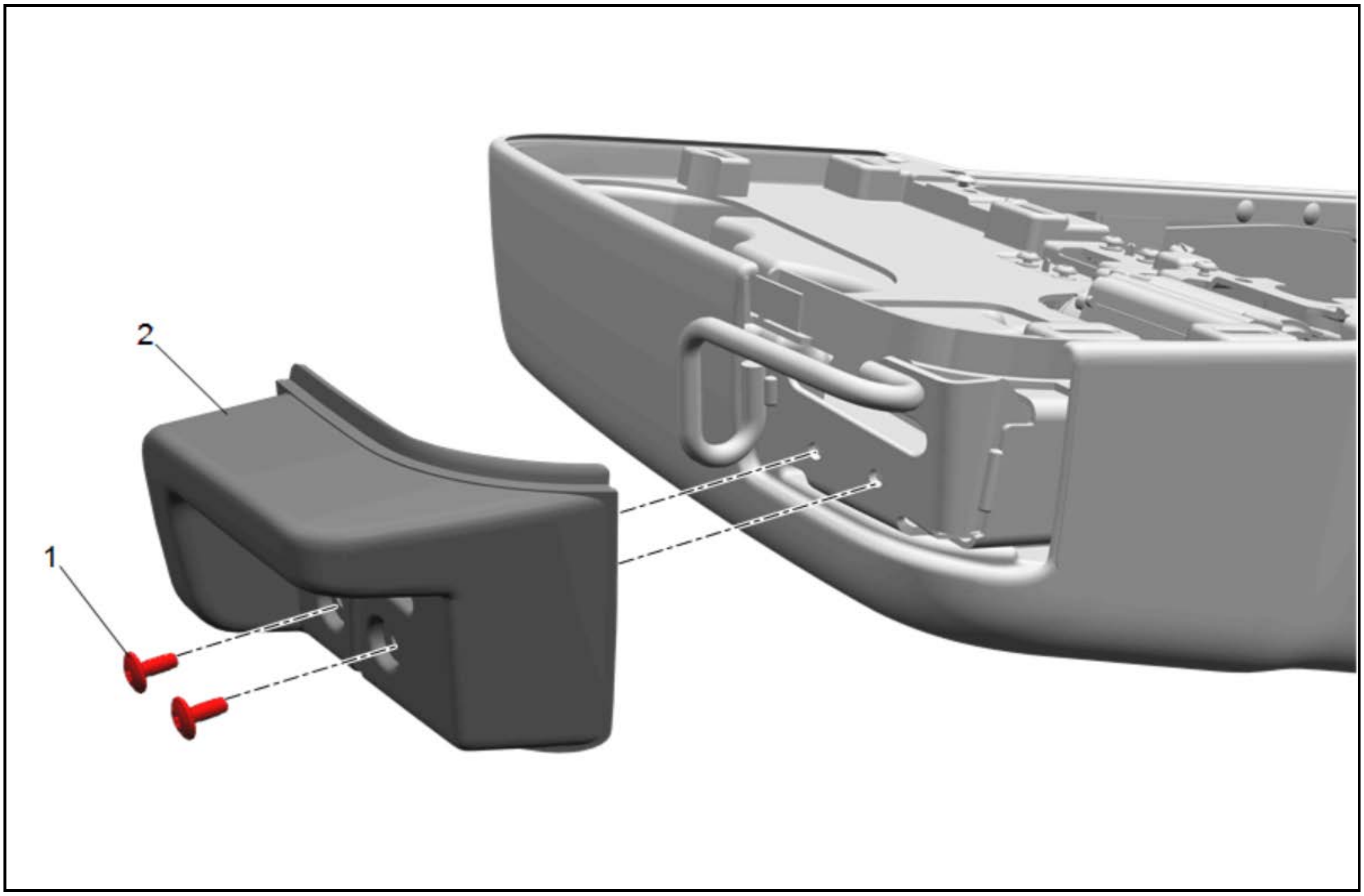
Object-ID=5577698 Owner=Palkovitz, John LMD=14-Sep-2021 LMB=Elliott, William

Removal Procedure



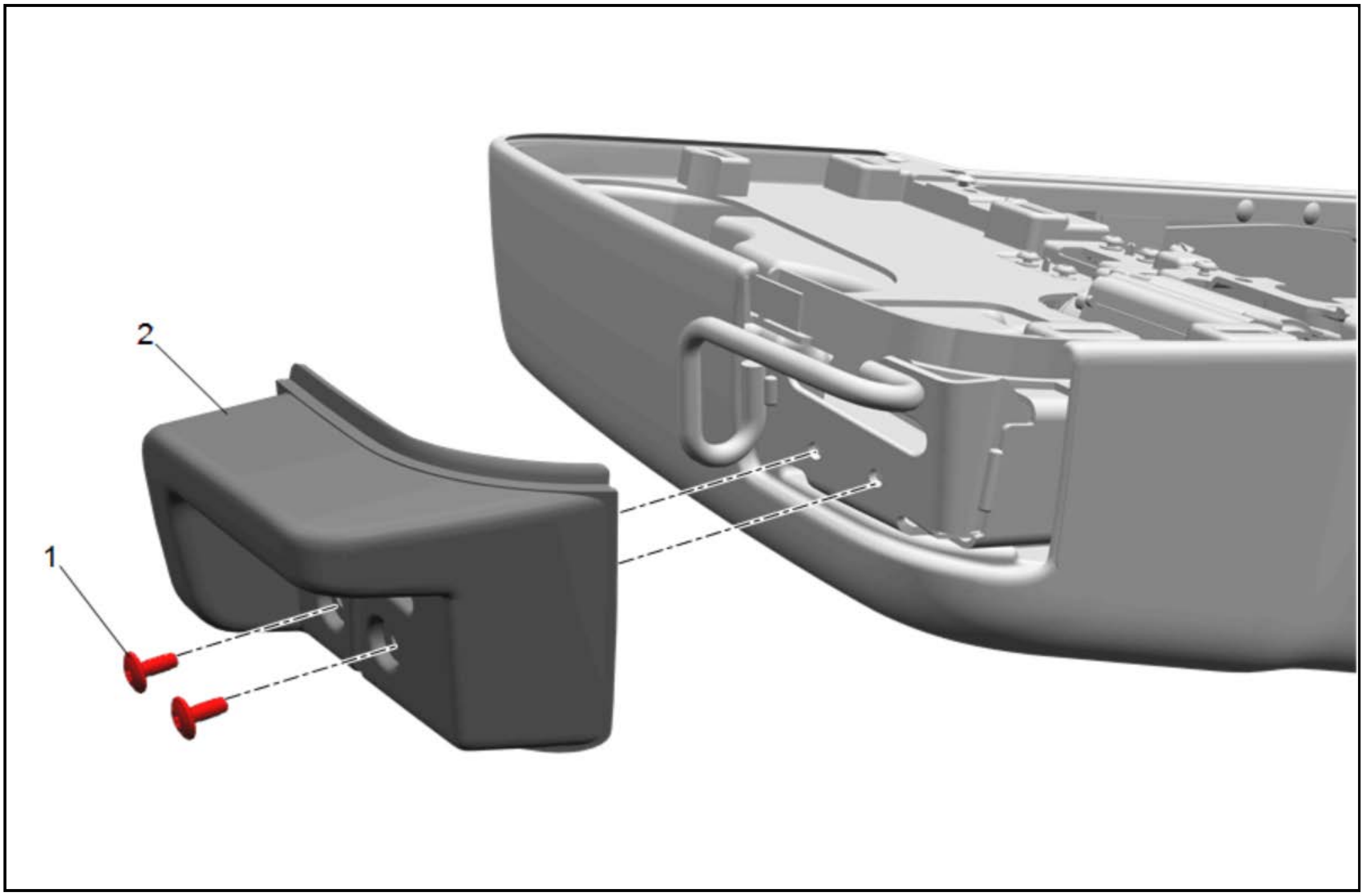
5045545

1. Front Center Seat Cup Holder (1) » Remove
2. Front Seat Armrest Cup Holder Bolt (2) » Remove [2x]
3. Using a suitable trim tool, release the front seat armrest cup holder retainers.
4. Front Seat Armrest Cup Holder (3) » Remove



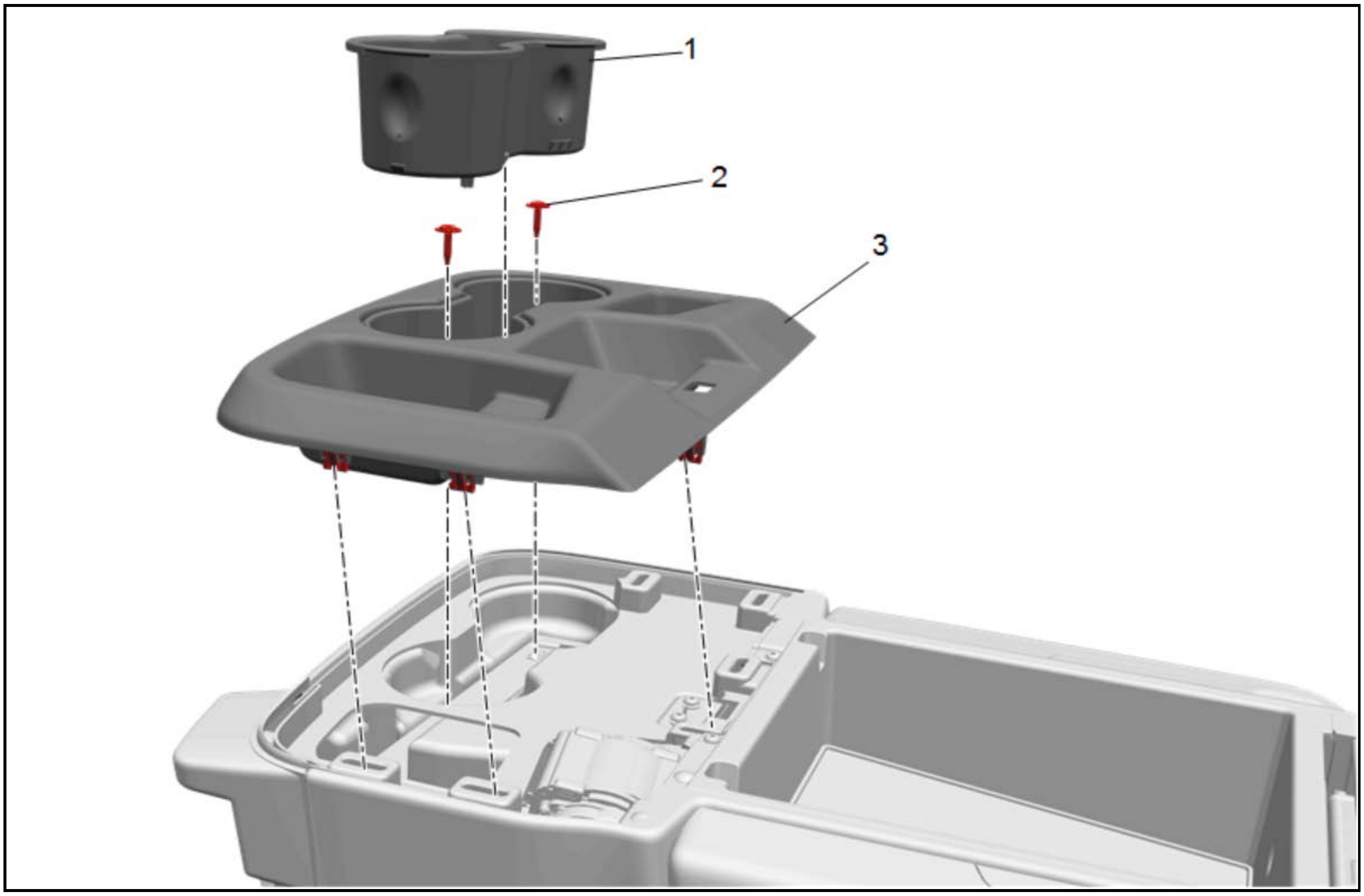
5. Front Seat Belt Opening Bezel Bolt (1) » Remove [2x]
6. Front Seat Belt Opening Bezel (2) » Remove

Installation Procedure



5045538

1. Front Seat Belt Opening Bezel (2) » Install
2. If NEW threaded components are being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded components are reused, prepare the threaded components using the following steps:
   - 2.1. Remove any loose cured adhesive from the external threads of the components using a lint free cloth.
   - 2.2. Thread the cleaned components into the internal mating threads and remove to loosen trapped cured adhesive.
   - 2.3. Apply thread locking adhesive to the external threads of the components.
   - 2.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
3. Front Seat Belt Opening Bezel Bolt (1) » Install and tighten [2x] — *Fastener Specifications on page 8-341*



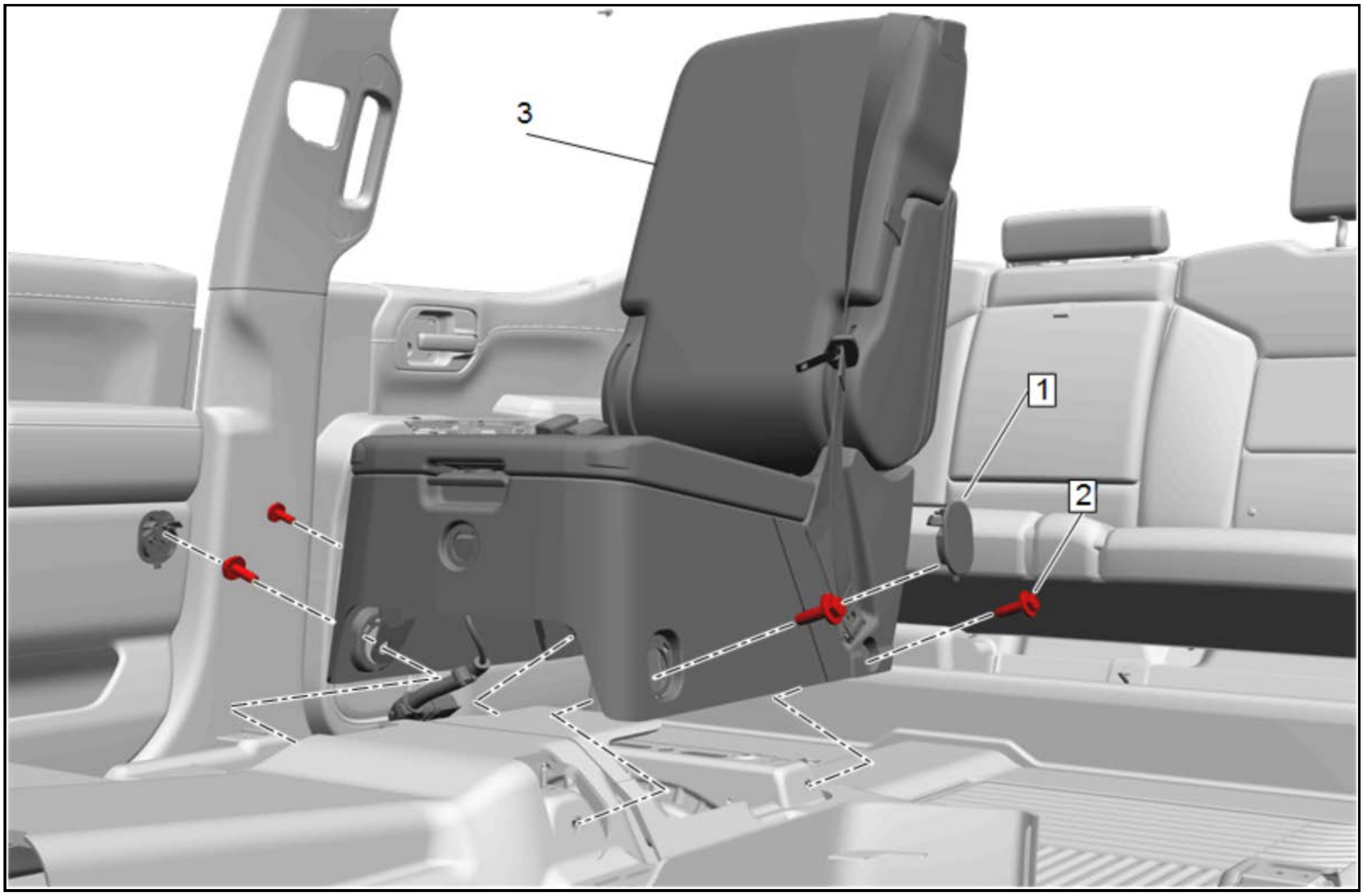
5045545

4. Front Seat Armrest Cup Holder (3) » Install
5. Front Seat Armrest Cup Holder Bolt (2) » Install and tighten [2x]
6. Front Center Seat Cup Holder (1) » Install

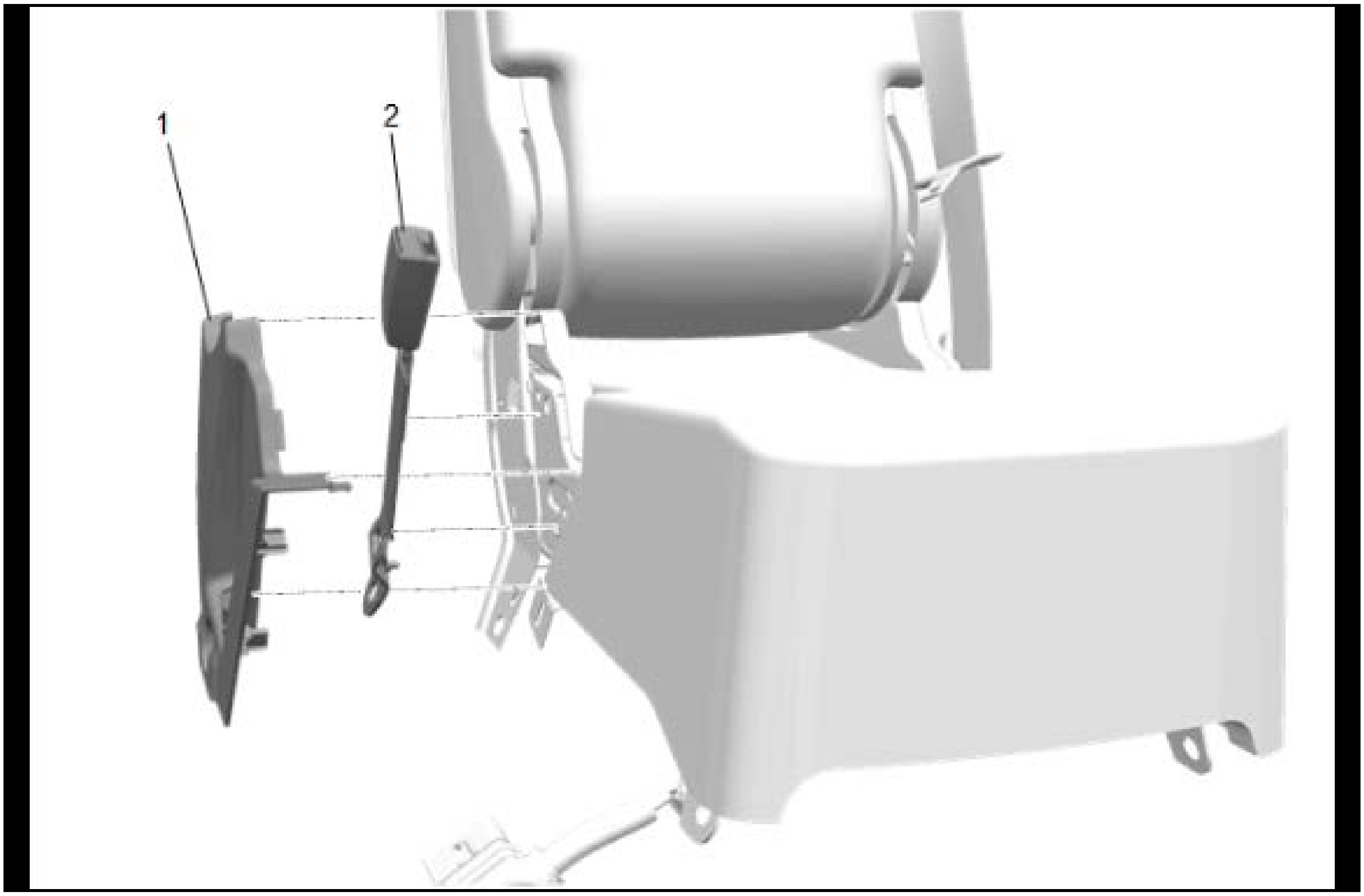
Front Seat Center Belt Buckle Replacement

Object-ID=5657385 Owner=Palkovitz, John LMD=23-Sep-2021 LMB=Elliott, William

Removal Procedure



1. Front Center Seat (3) » Remove



5905535

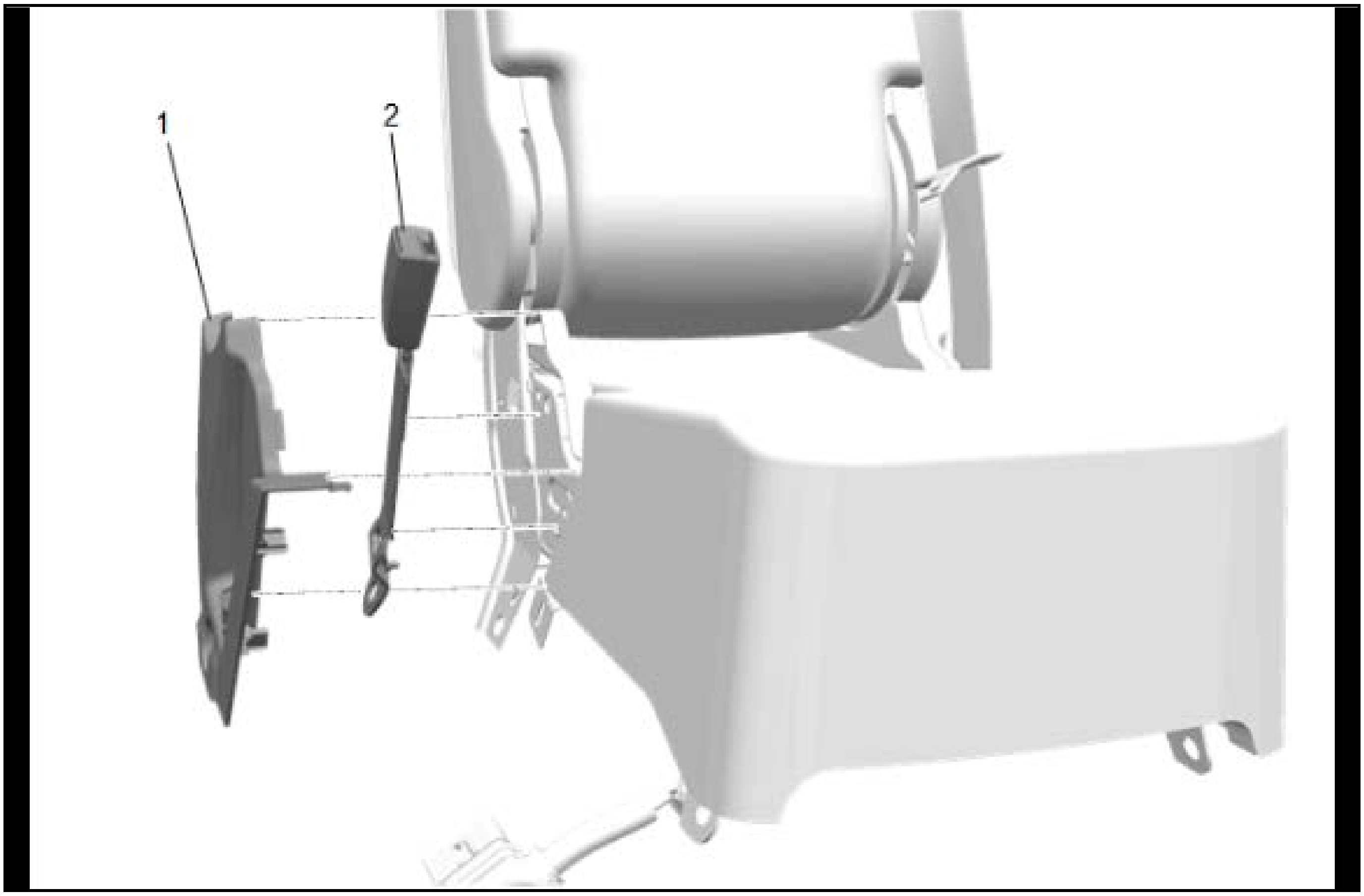
Note: Right side only.

2. Using a suitable plastic trim tool, release the front seat center armrest hinge finish cover - lower (1) retaining clips.

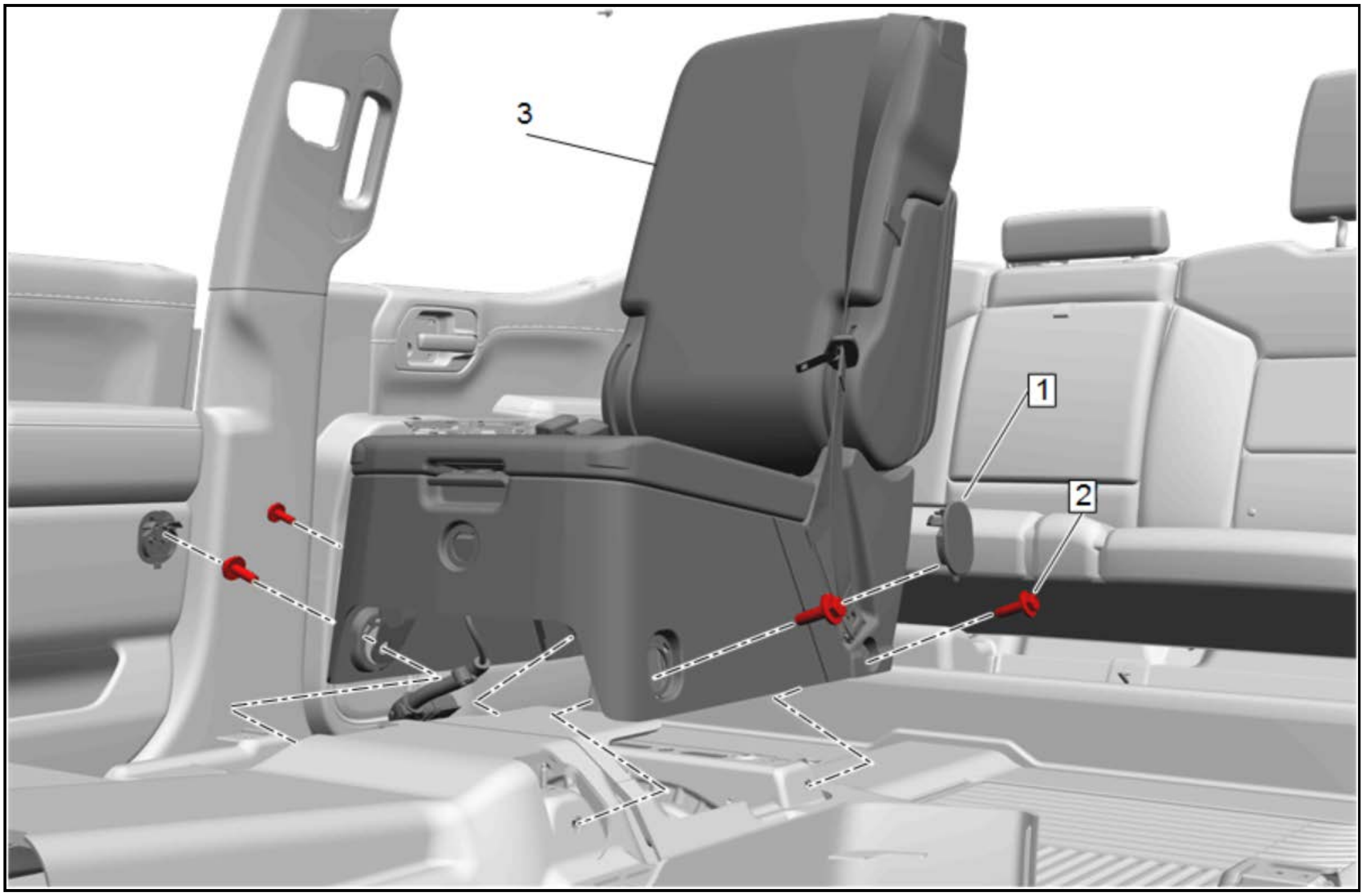
   Note: Seat belt retaining bushings are for manufacturing purposes only.

3. Remove and DISCARD seat belt retaining bushings.
4. Front Seat Center Belt Buckle (2) » Remove

Installation Procedure



1. Front Seat Center Armrest Hinge Finish Cover - Lower (1) » Install
2. Front Seat Center Belt Buckle (2) » Install

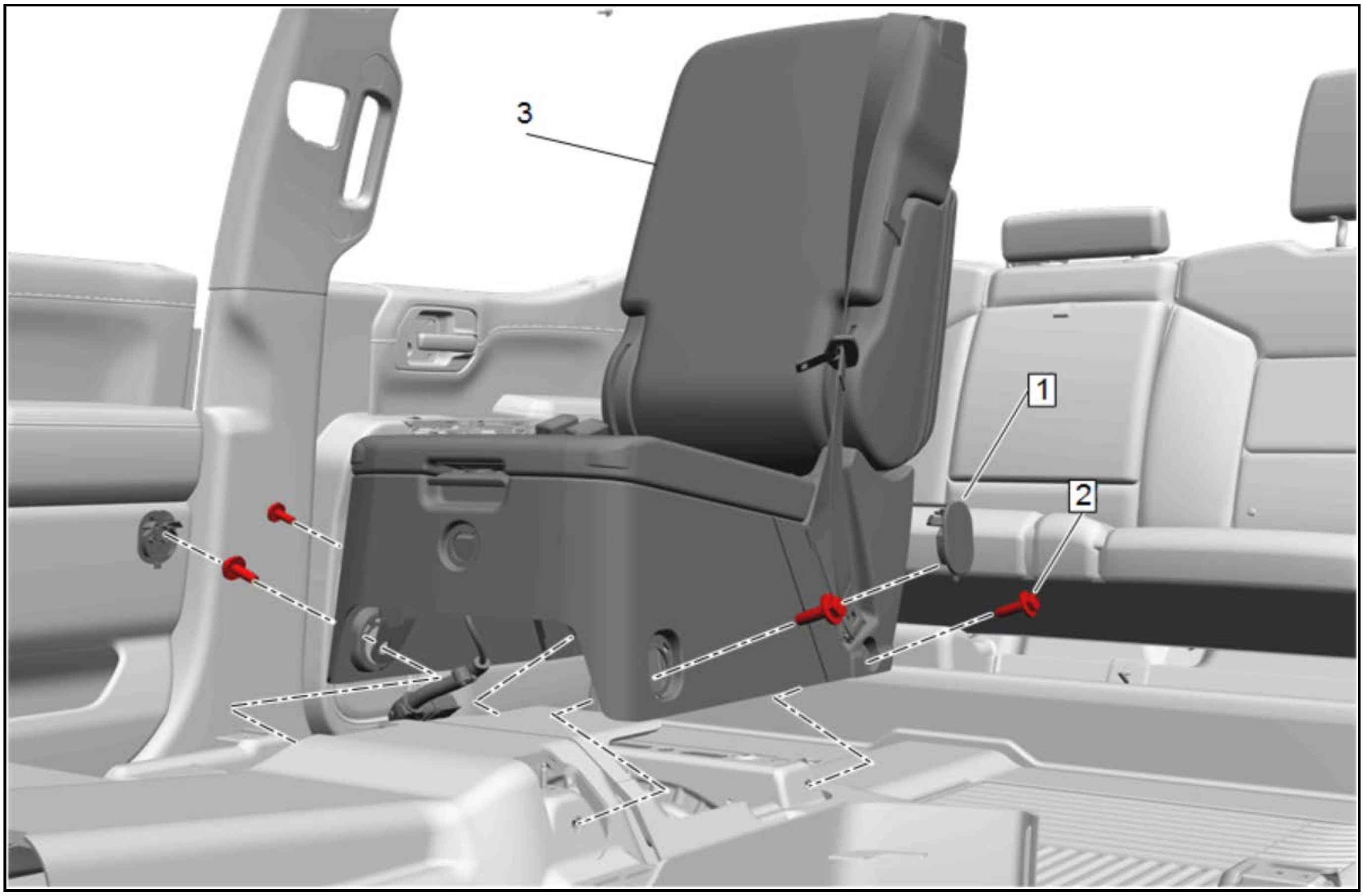


3. Front Center Seat (3) » Install

Front Seat Center Belt Retractor Replacement (with Storage Armrest)

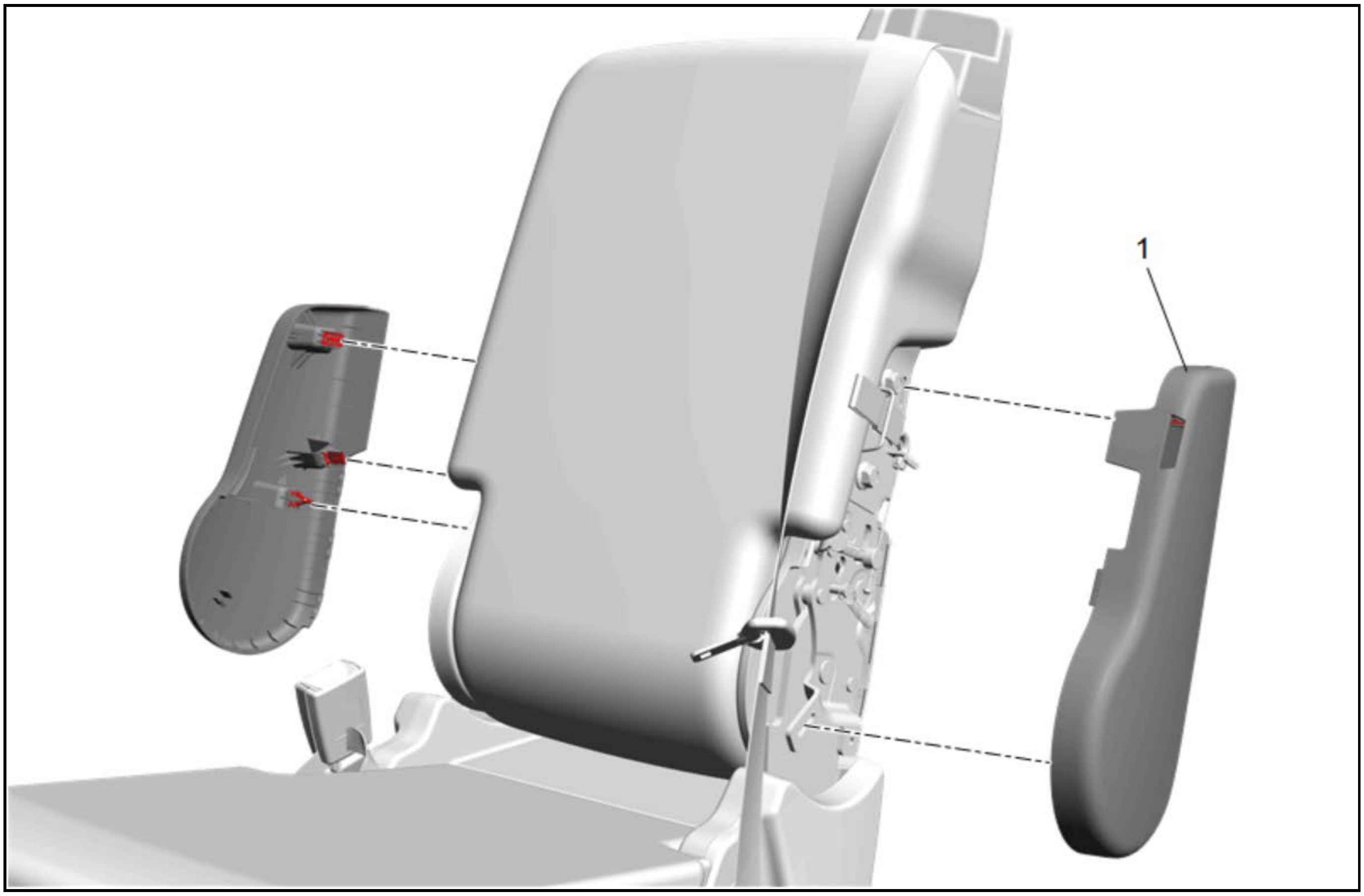
Object-ID=5659736 Owner=Palkovitz, John LMD=22-Sep-2021 LMB=Elliott, William

Removal Procedure



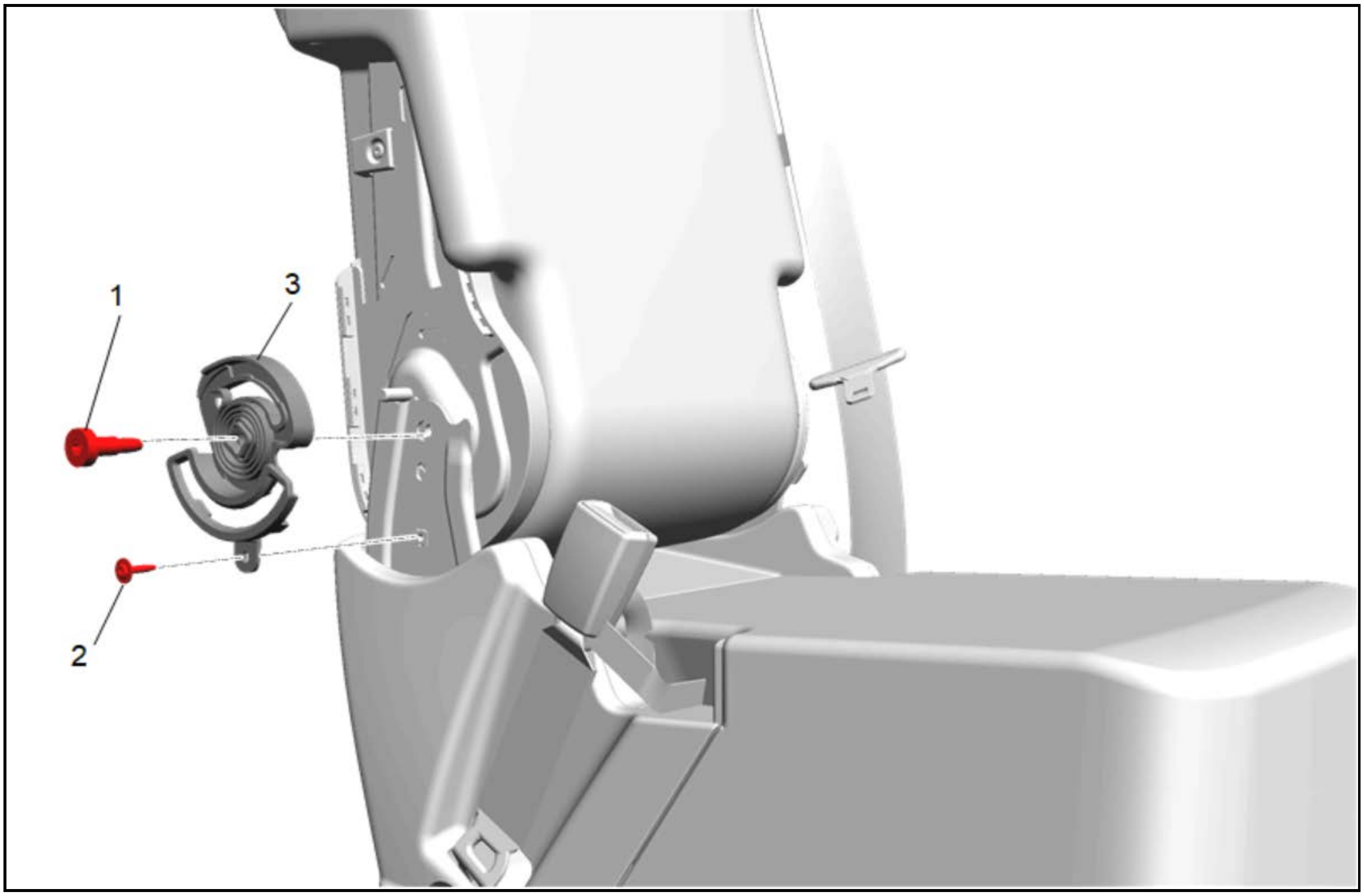
5027621

1. Front Center Seat (3) » Remove



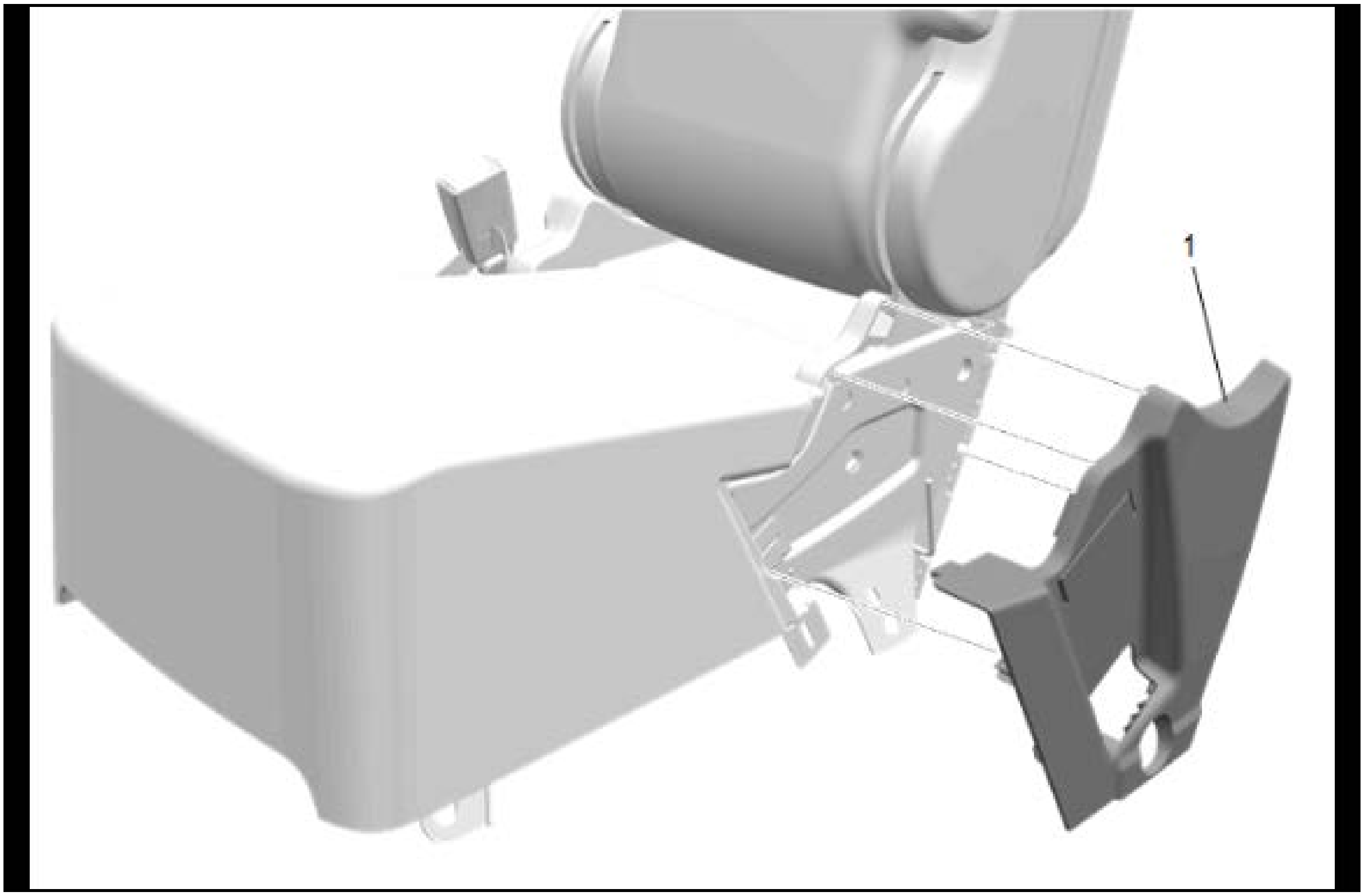
5045533

2. Using a suitable trim tool, release the retaining clips.
3. Front Seat Center Armrest Hinge Finish Cover - Upper (1) » Remove [2x]



5282281

4. Front Seat Center Armrest Pivot Bolt (1) » Remove
5. Front Seat Armrest Adjust Retainer Bolt (2) » Remove
6. Front Seat Armrest Adjust Retainer (3) » Remove

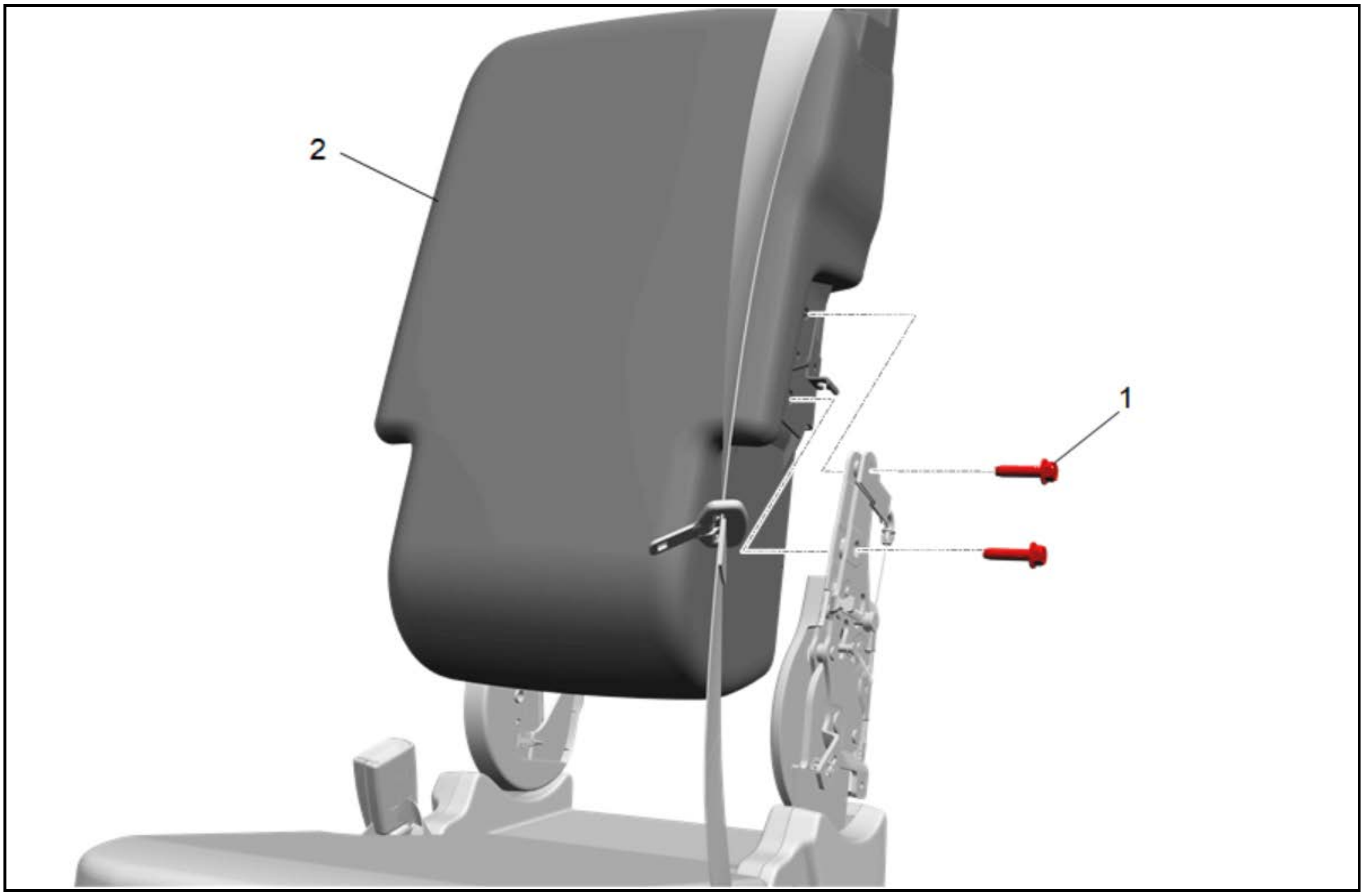


5903822

7. Using a suitable plastic trim tool, release the front seat center armrest hinge finish cover - lower retaining clips.

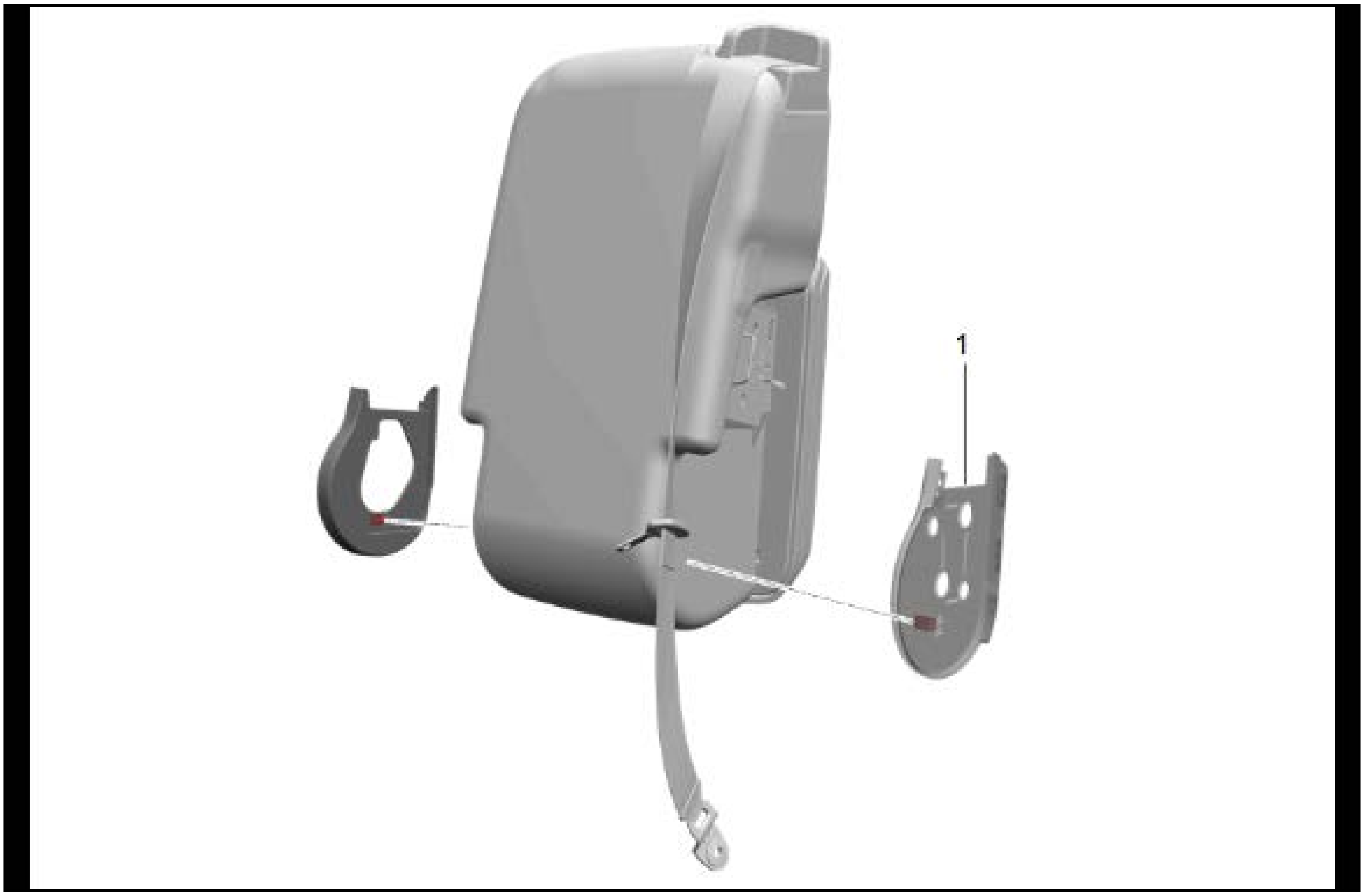
   Note: Seat belt retaining bushings are for manufacturing purposes only.

8. Remove and DISCARD seat belt retaining bushings.
9. Front Seat Center Belt Anchor Plate » Remove
10. Front Seat Center Armrest Hinge Finish Cover - Lower (1) » Remove



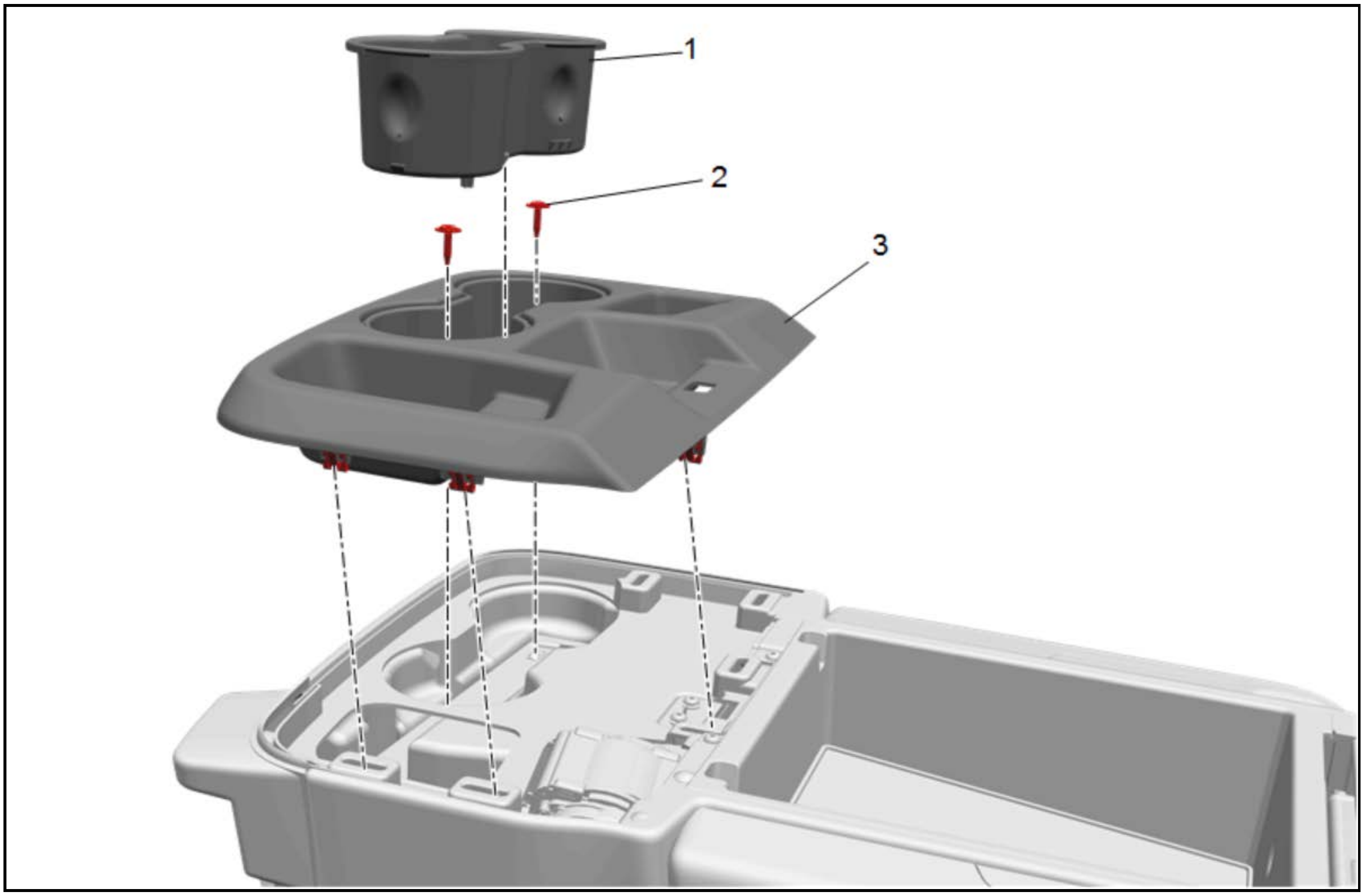
5045528

11. Disconnect the latch release cable.
12. Front Seat Center Armrest Bolt (1) » Remove [2x]
13. Front Center Seat Armrest (2) » Remove

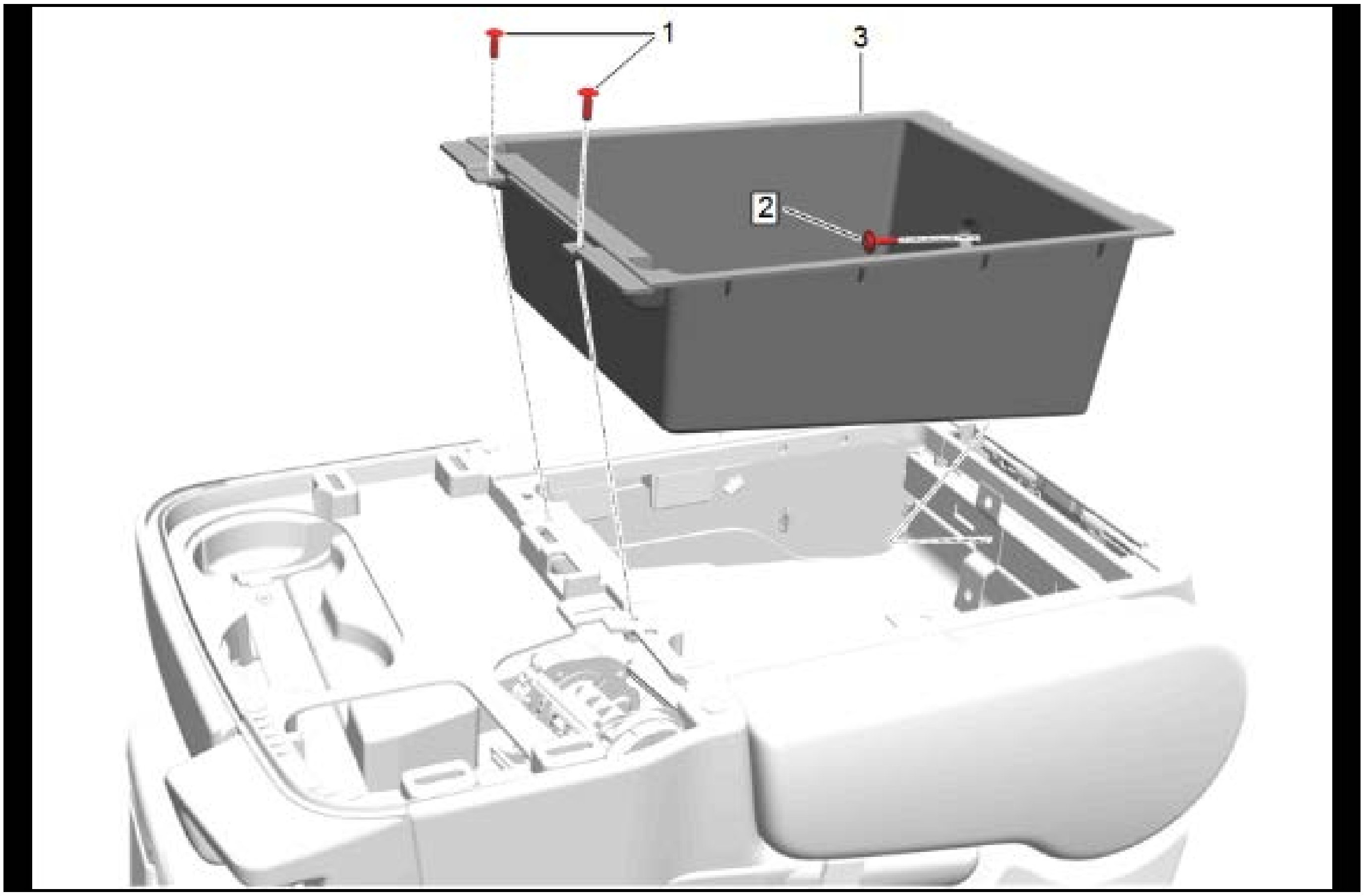


5577851

14. Using a suitable trim tool, release the retaining clip.
15. Front Seat Center Armrest Hinge Finish Inner Cover (1) » Remove [2x]

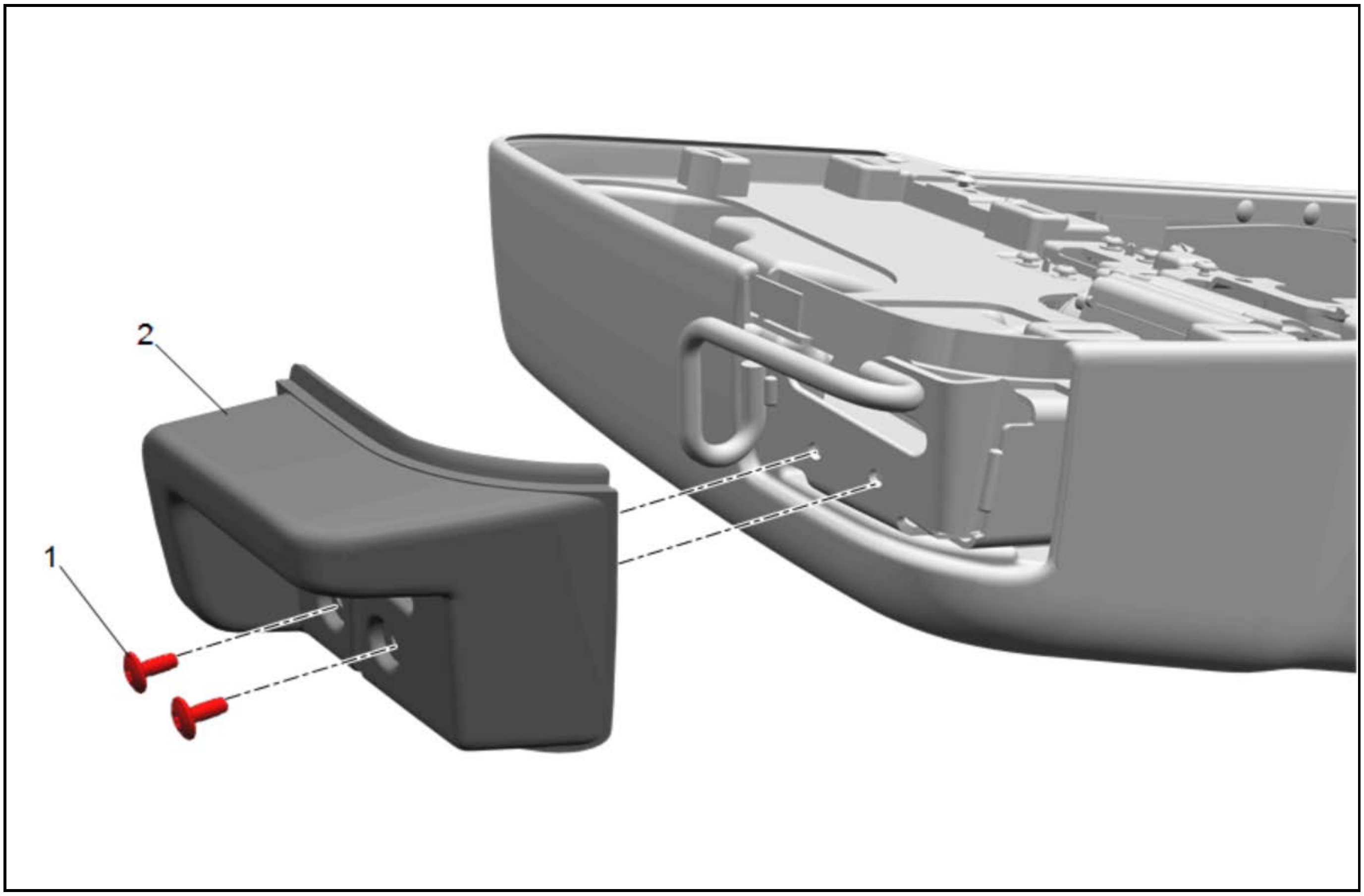


16. Front Center Seat Cup Holder (1) » Remove
17. Front Seat Armrest Cup Holder Bolt (2) » Remove [2x]
18. Using a suitable trim tool, release the front seat armrest cup holder retainers.
19. Front Seat Armrest Cup Holder (3) » Remove



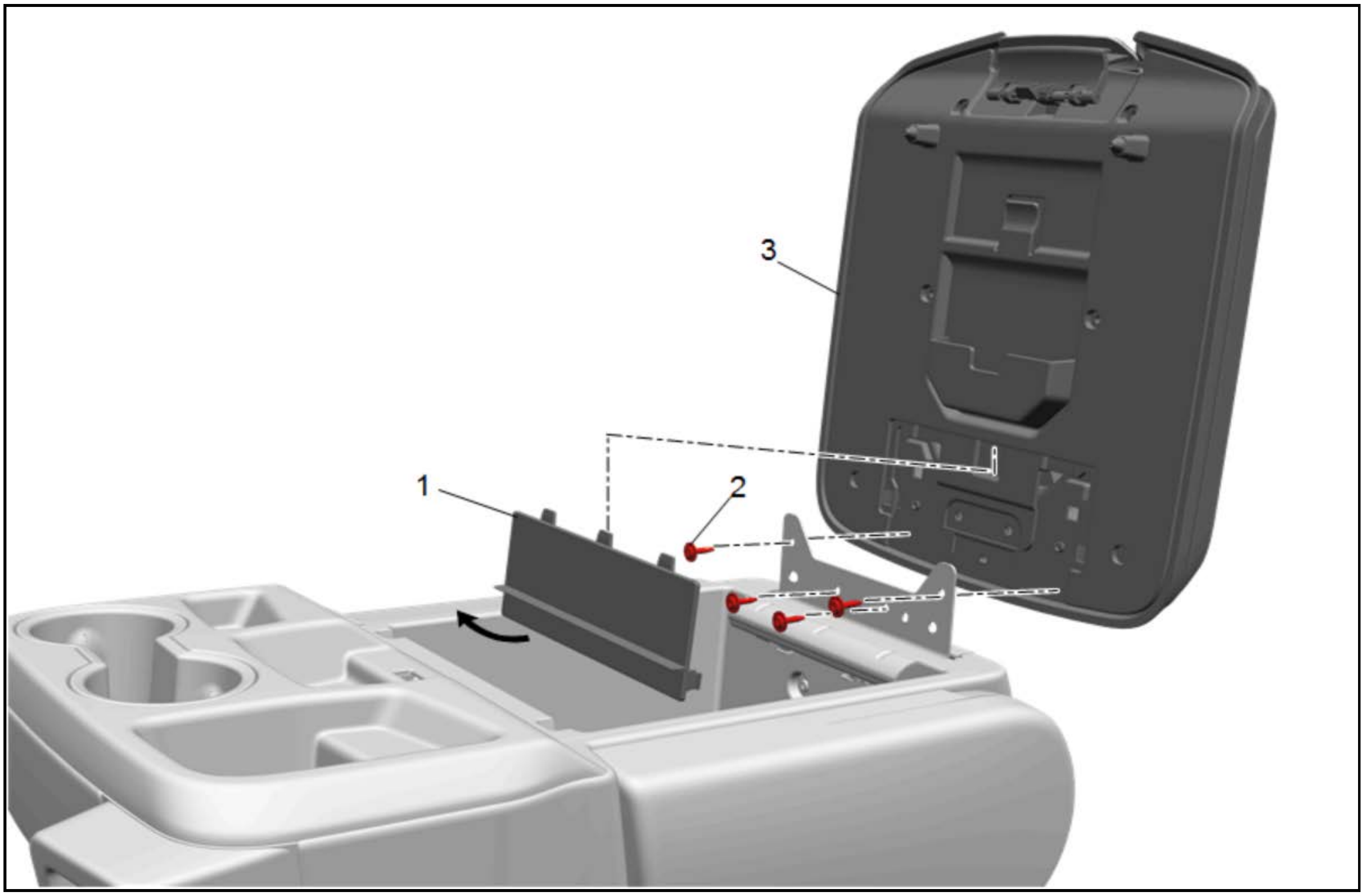
5657503

20. Front Seat Stowage Compartment Bolt - Front (1) » Remove [2x]
21. Front Seat Stowage Compartment Bolt - Rear (2) » Remove
22. Front Seat Stowage Compartment (3) » Remove



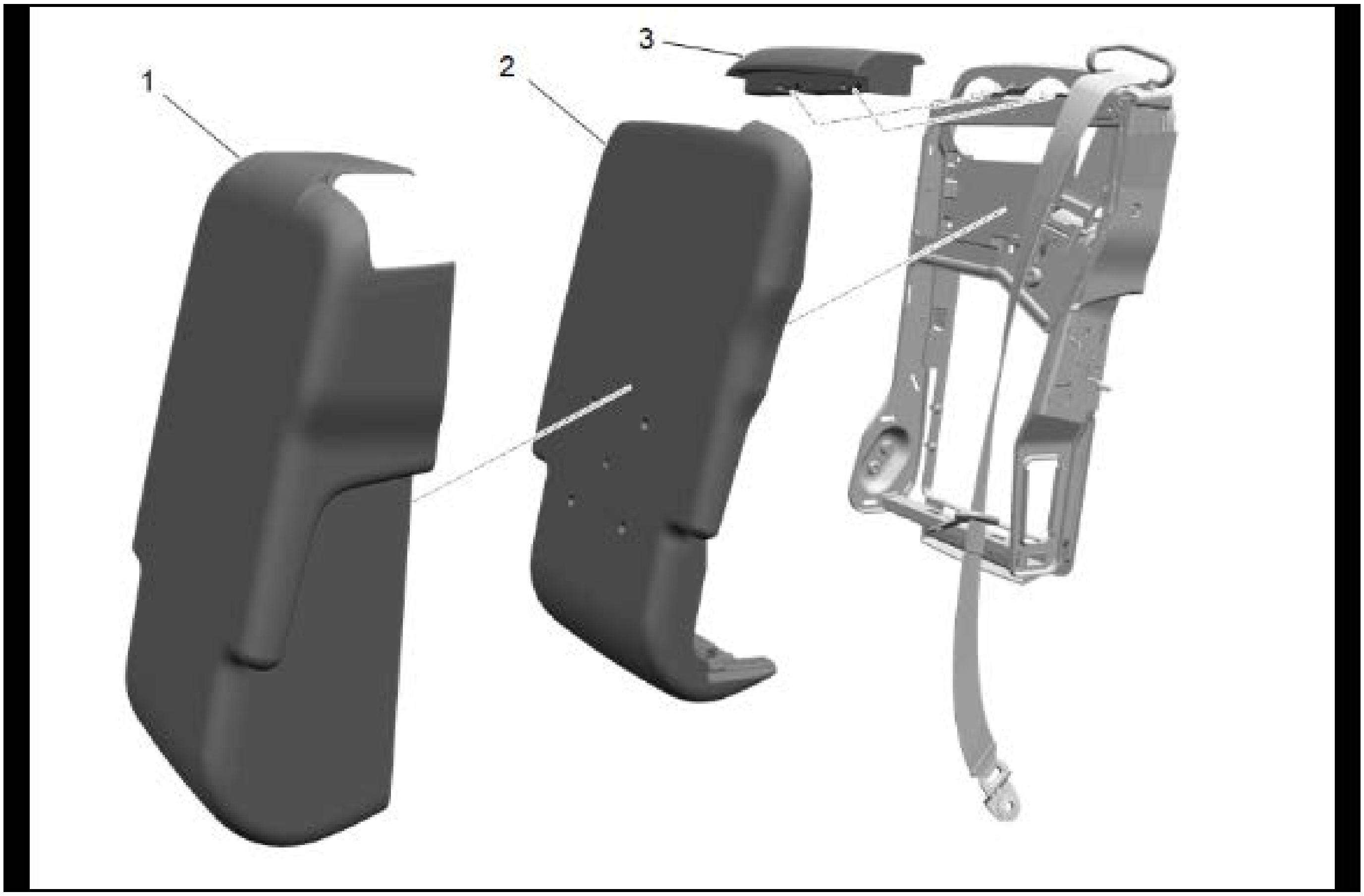
5045538

23. Front Seat Belt Opening Bezel Bolt (1) » Remove [2x]
24. Front Seat Belt Opening Bezel (2) » Remove

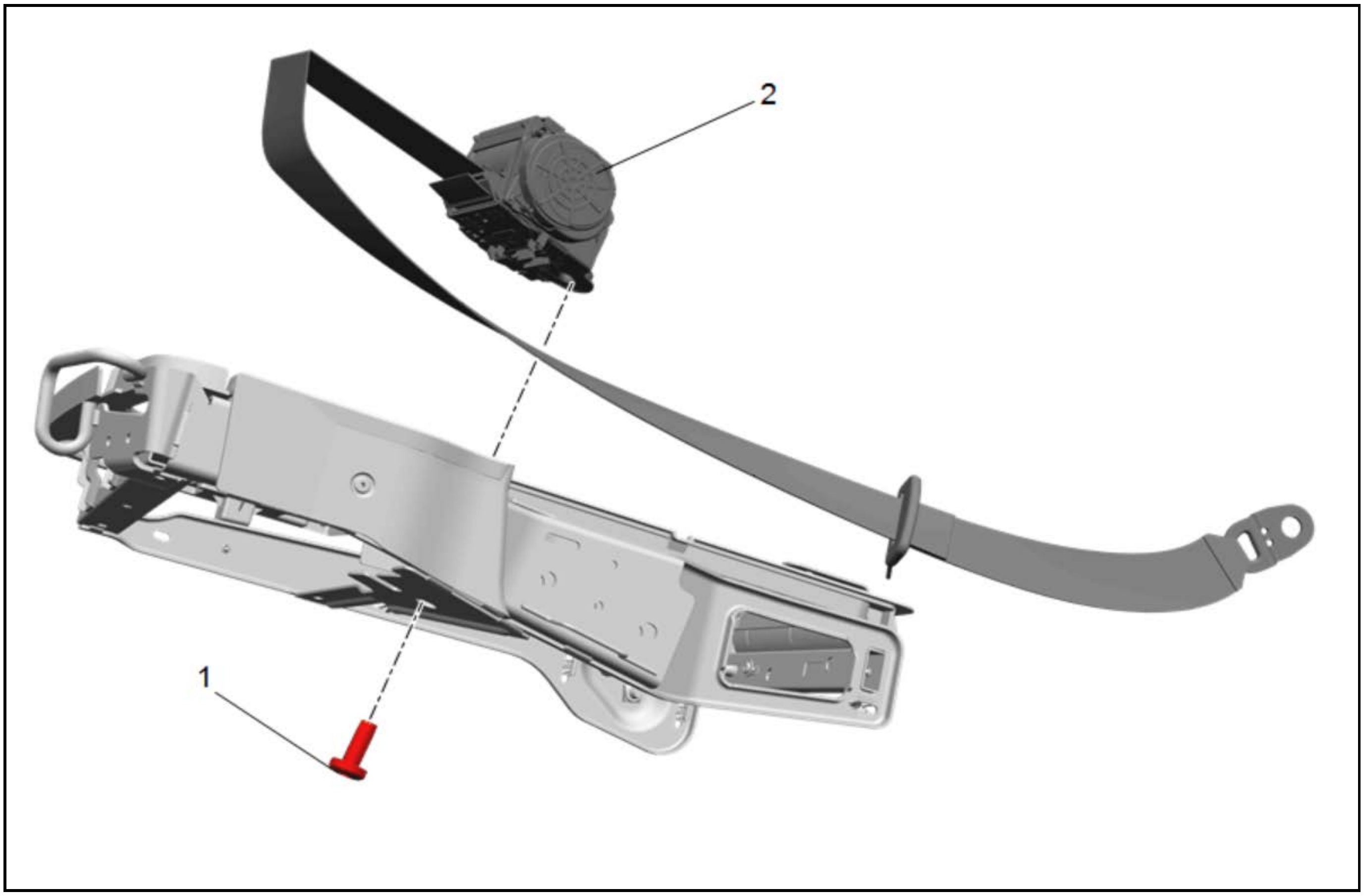


5045524

25. Pull outward and down on the bottom of the front seat armrest hinge finish cover to release the retaining tabs.
26. Front Seat Armrest Hinge Finish Cover (1) » Remove
27. Front Seat Armrest Lid Bolt (2) » Remove [4x]
28. Front Seat Armrest Lid (3) » Remove

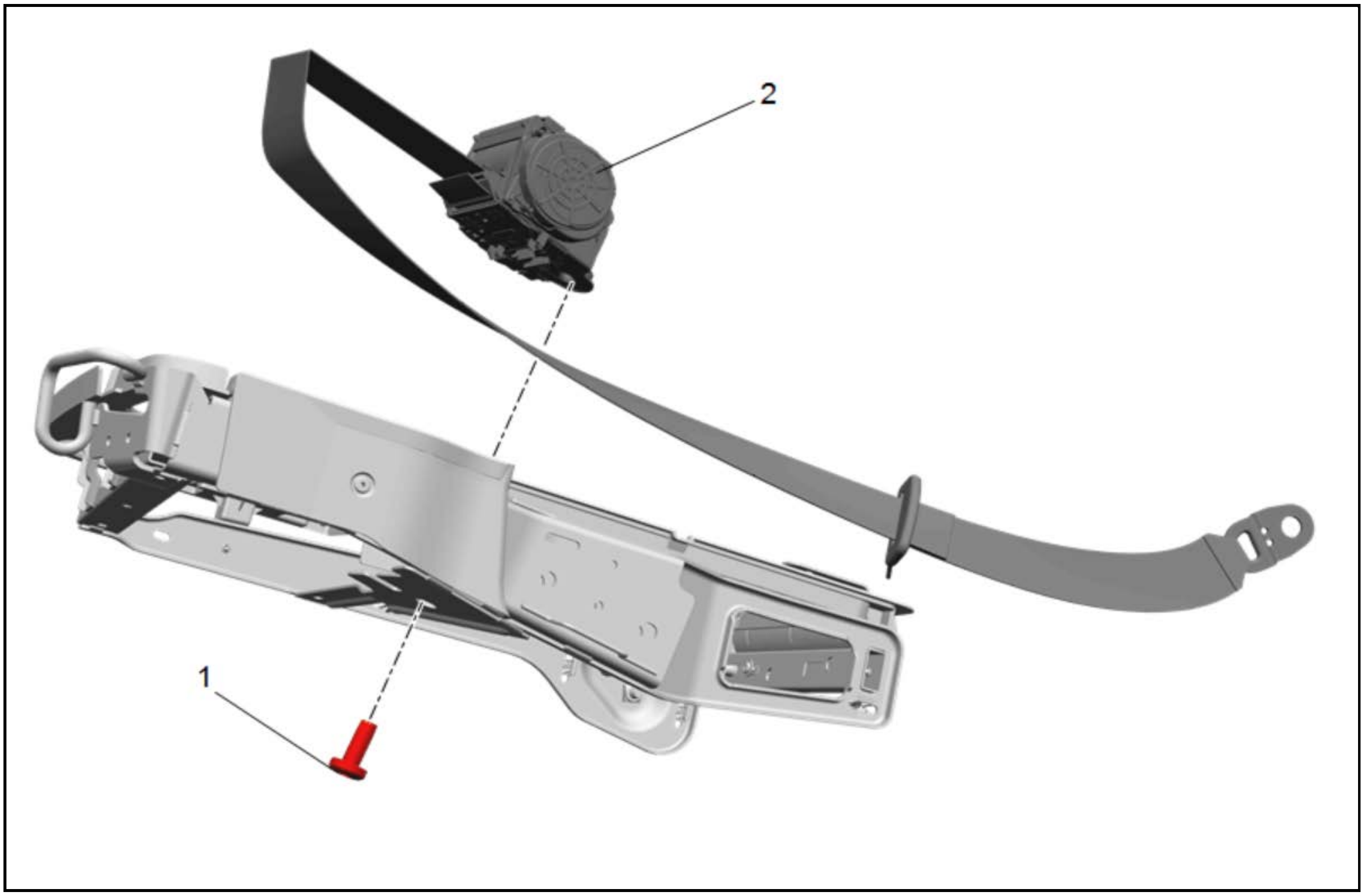


29. Disengage the J-channel retainers from the seat back cushion frame.
30. Disconnect the retainers from the seat back cushion frame.
31. Front Seat Back Cover (1) » Remove
32. Front Seat Back Pad (2) » Remove
33. Front Seat Back Pad - Upper (3) » Remove



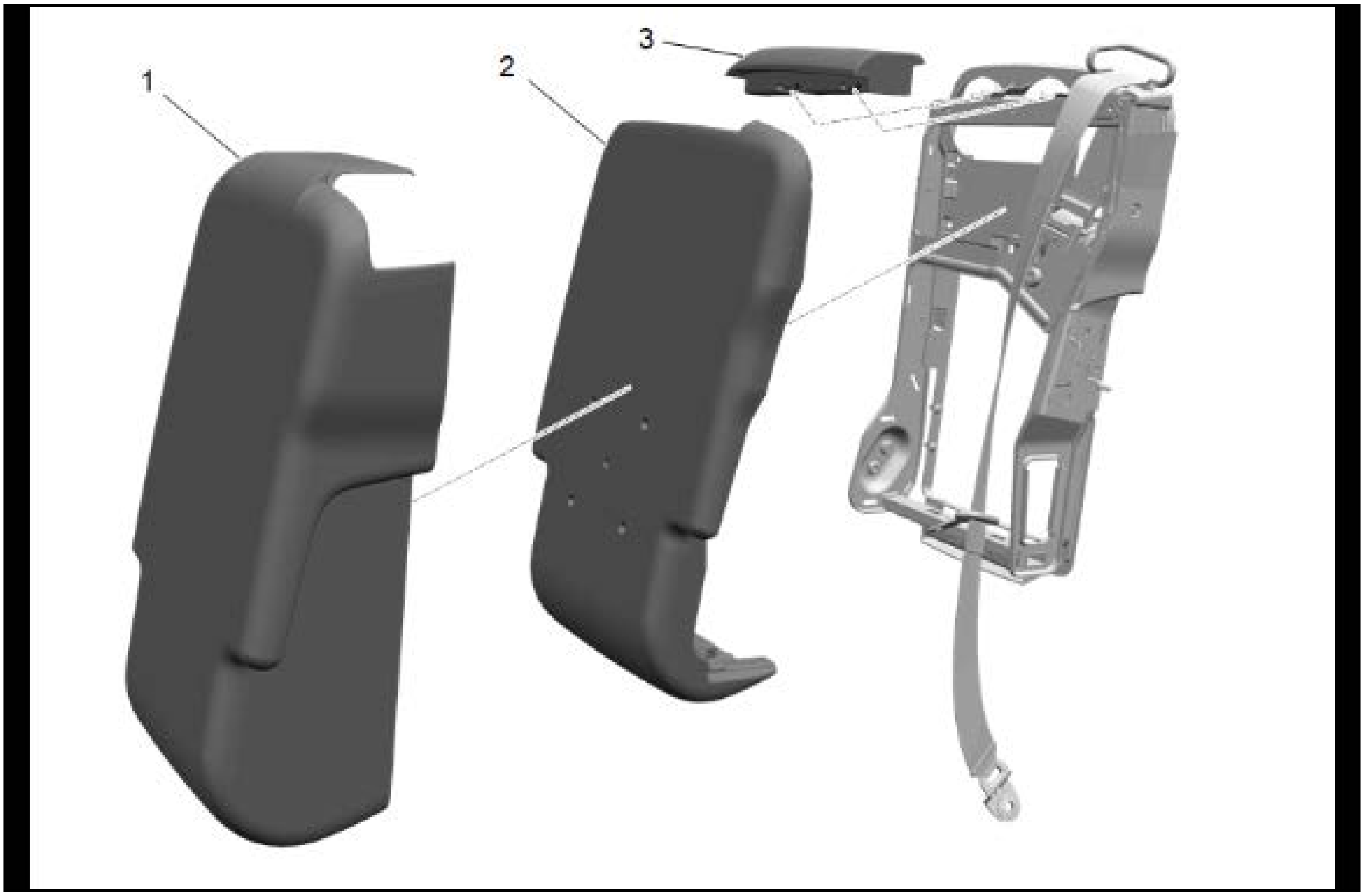
34. Front Seat Belt Retractor Bolt (1) » Remove
35. Front Seat Center Belt Retractor (2) » Remove

Installation Procedure

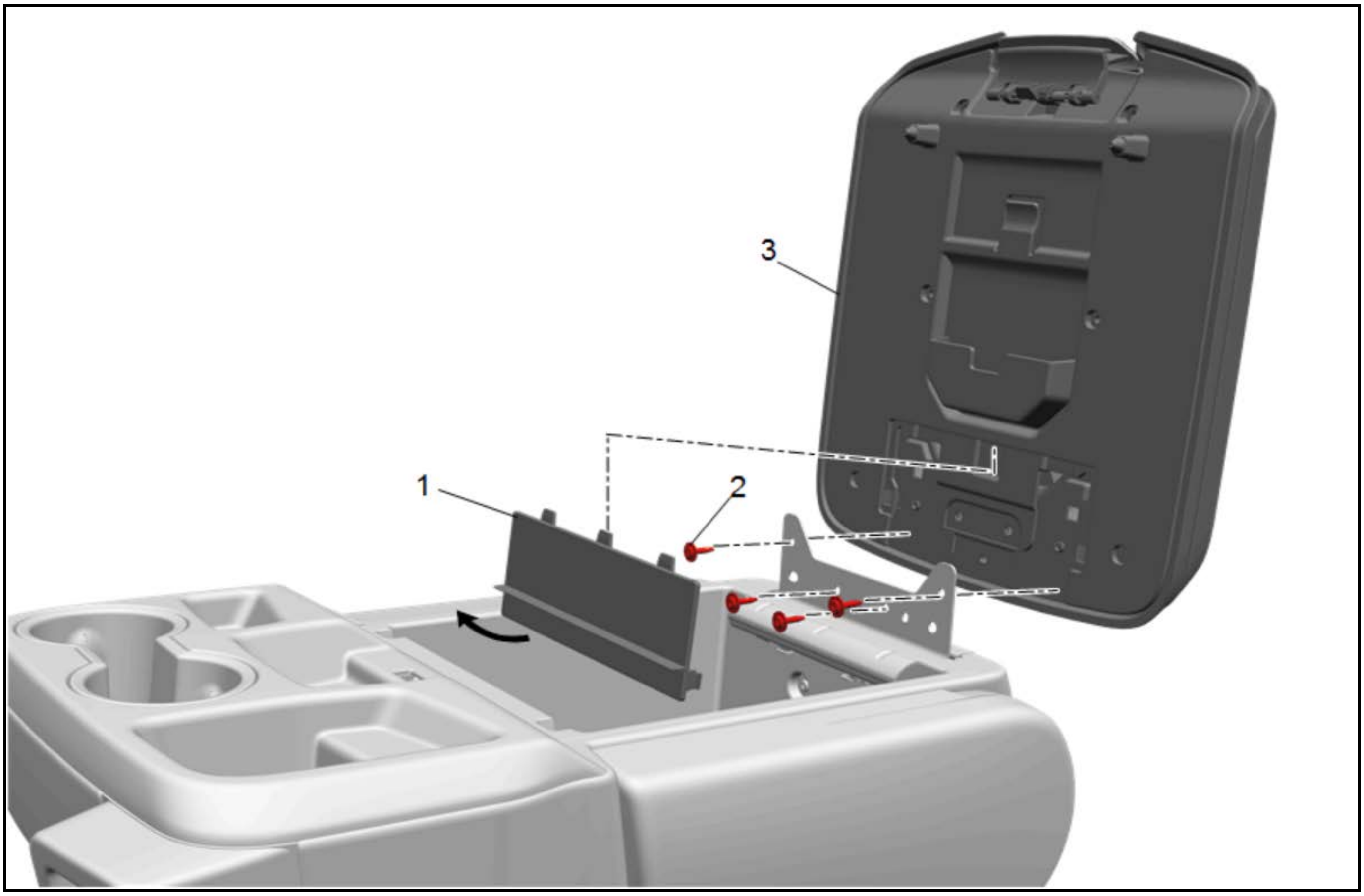


5045549

1. Front Seat Center Belt Retractor (2) » Install
2. Front Seat Belt Retractor Bolt (1) » Install and tighten — *Fastener Specifications on page 8-341*

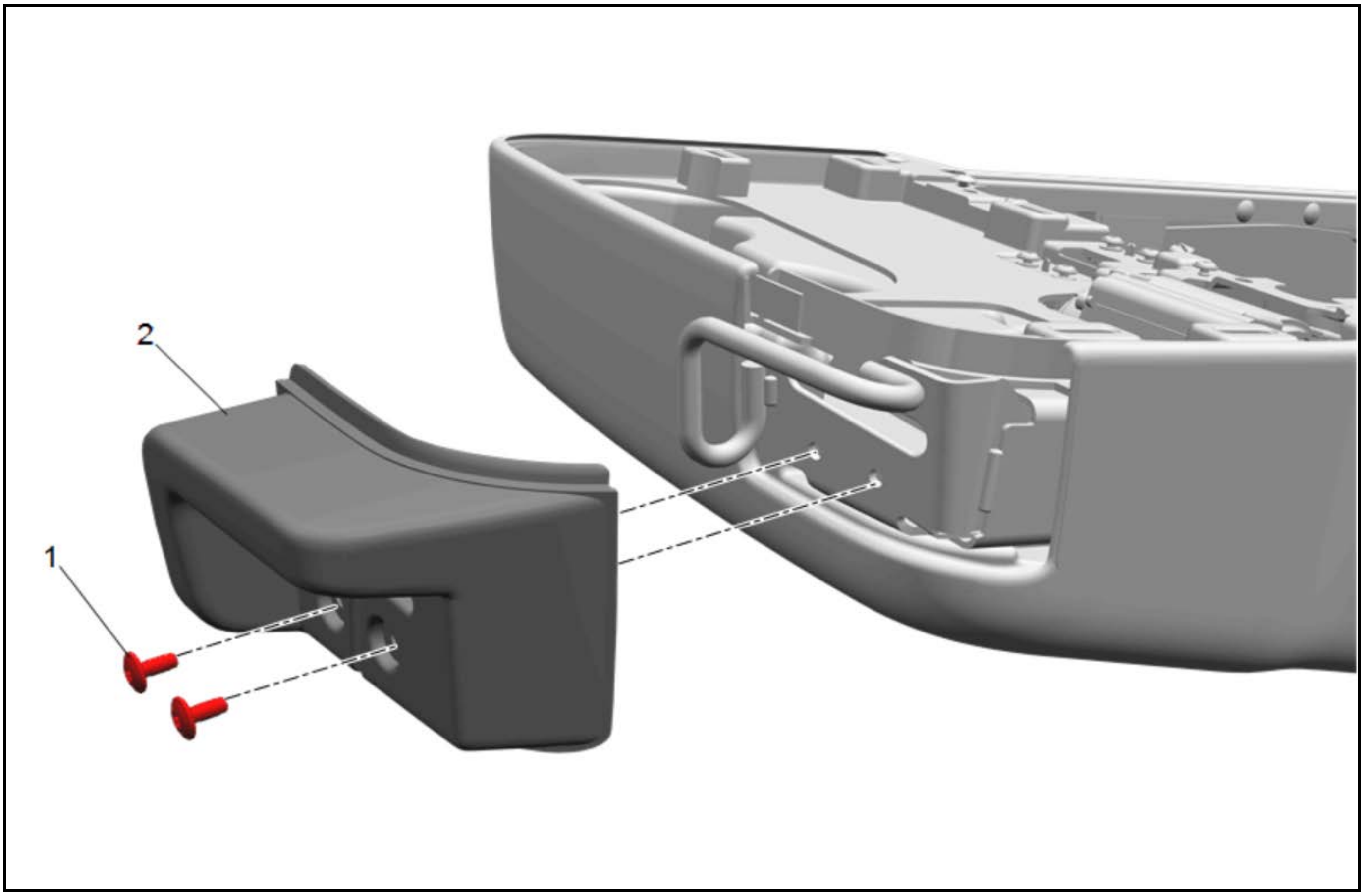


3. Front Seat Back Pad - Upper (3) » Install
4. Front Seat Back Pad (2) » Install
5. Front Seat Back Cover (1) » Install
6. Connect retainers to the seat back cushion frame.
7. Connect the J-channel retainers.



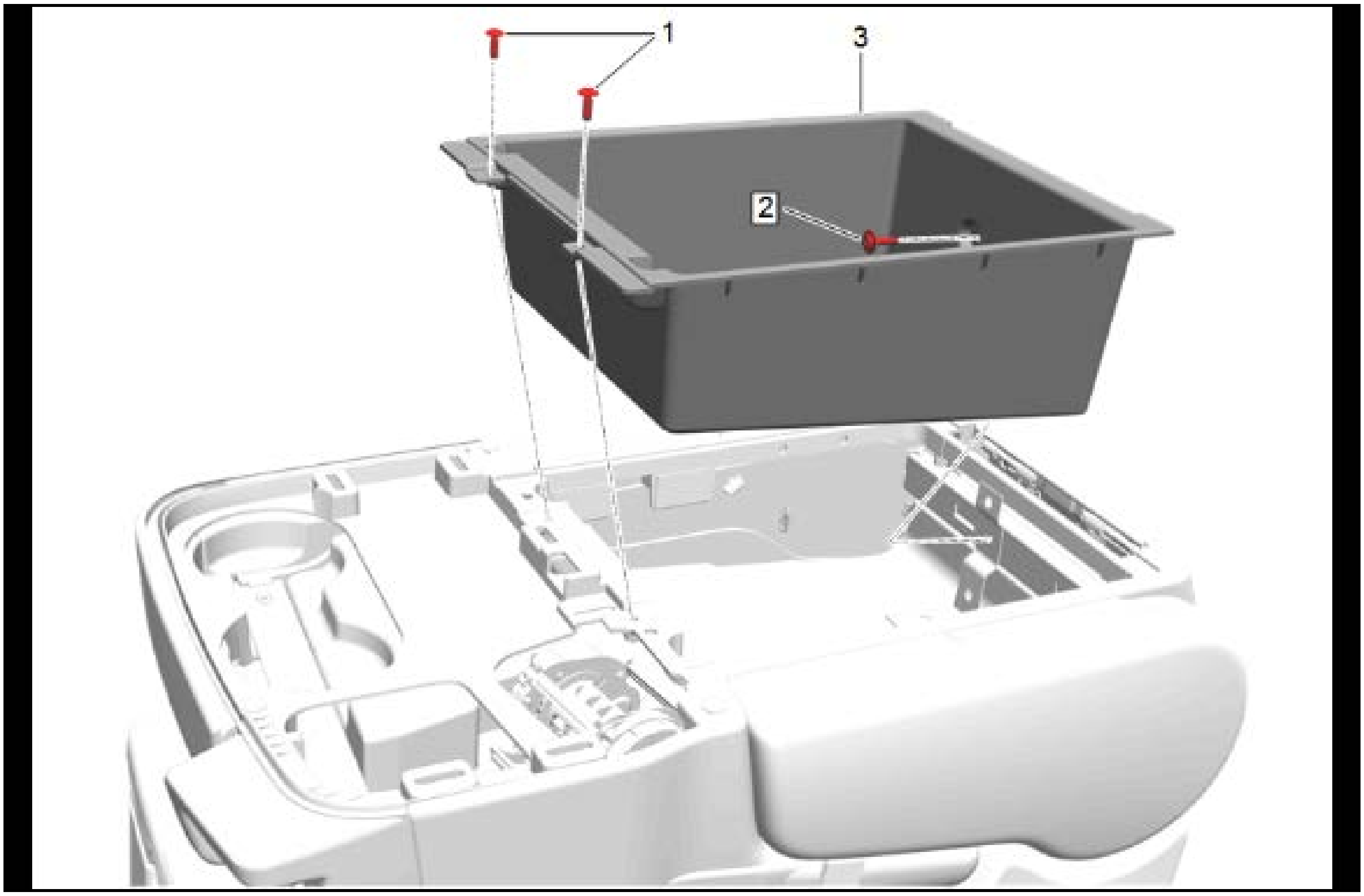
5045524

8. Front Seat Armrest Lid (3) » Install
9. Front Seat Armrest Lid Bolt (2) » Install and tighten [4x]
10. Front Seat Armrest Hinge Finish Cover (1) » Install



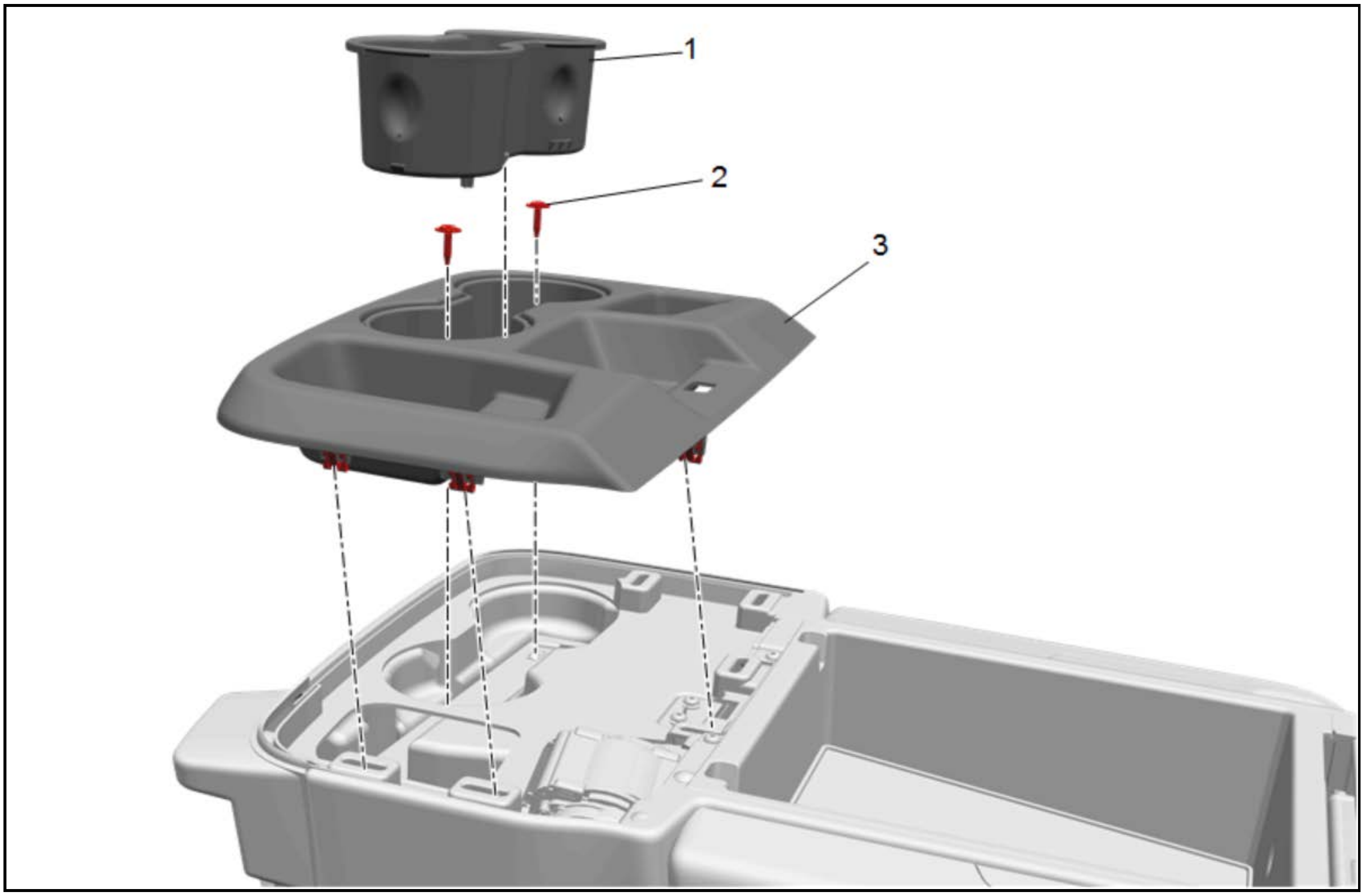
5045538

11. Front Seat Belt Opening Bezel (2) » Install
12. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    - 12.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    - 12.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    - 12.3. Apply thread locking adhesive to the external threads of the component.
    - 12.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
13. Front Seat Belt Opening Bezel Bolt (1) » Install and tighten [2x] — *Fastener Specifications on page 8-341*



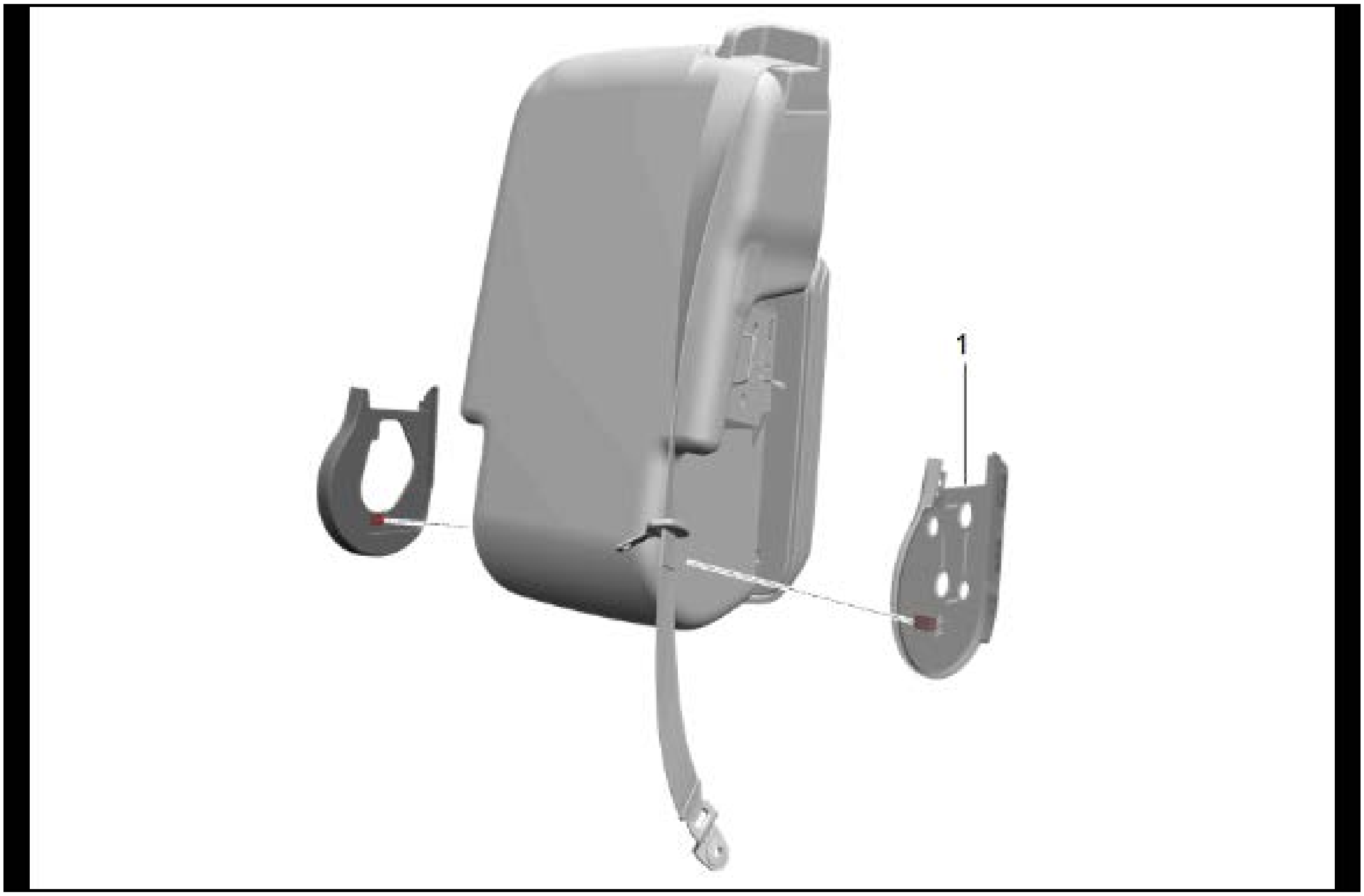
5657503

14. Front Seat Stowage Compartment (3) » Install
15. Front Seat Stowage Compartment Bolt - Rear (2)
    » Install and tighten
16. Front Seat Stowage Compartment Bolt - Front (1)
    » Install and tighten [2x]

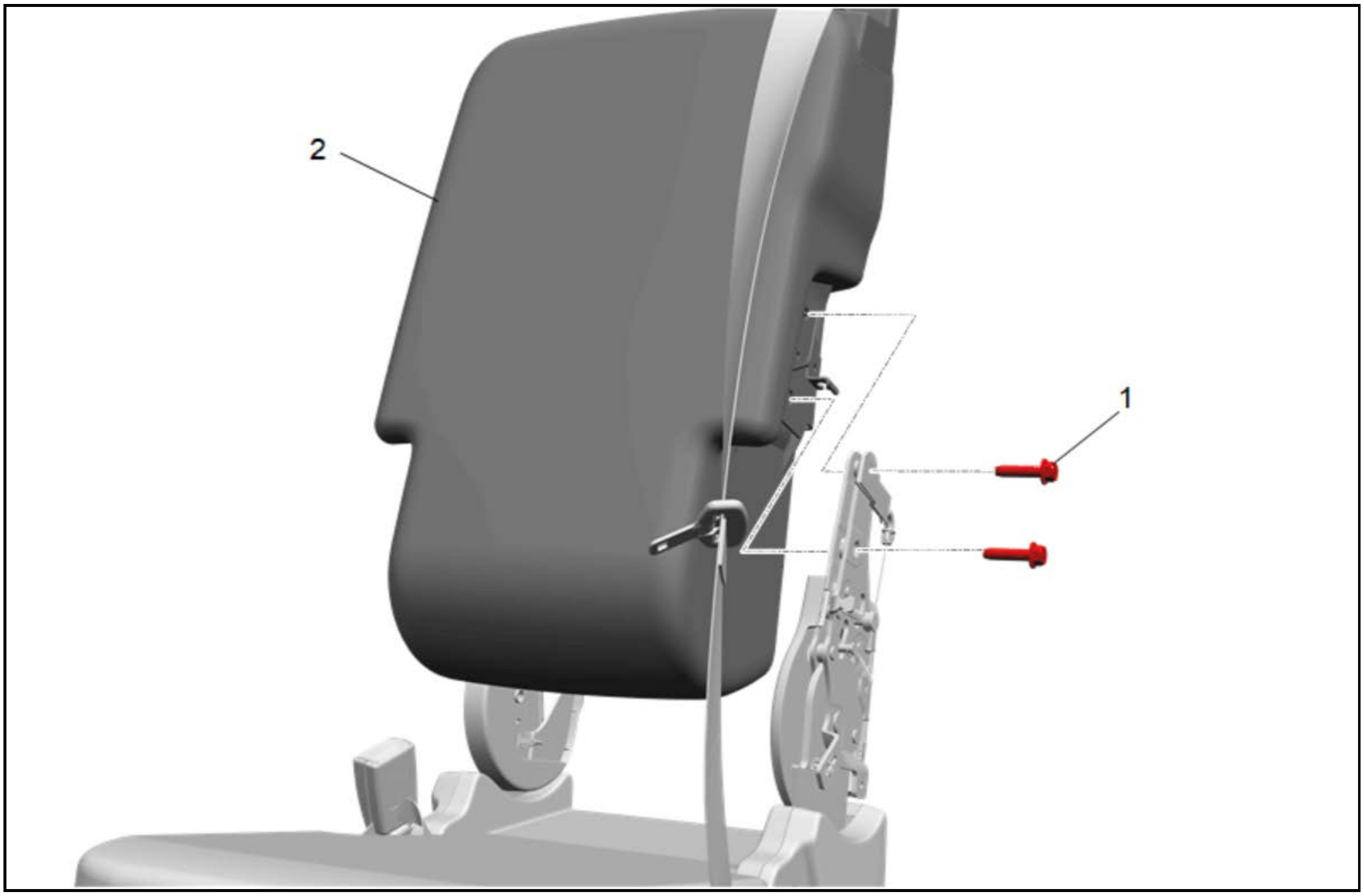


5045545

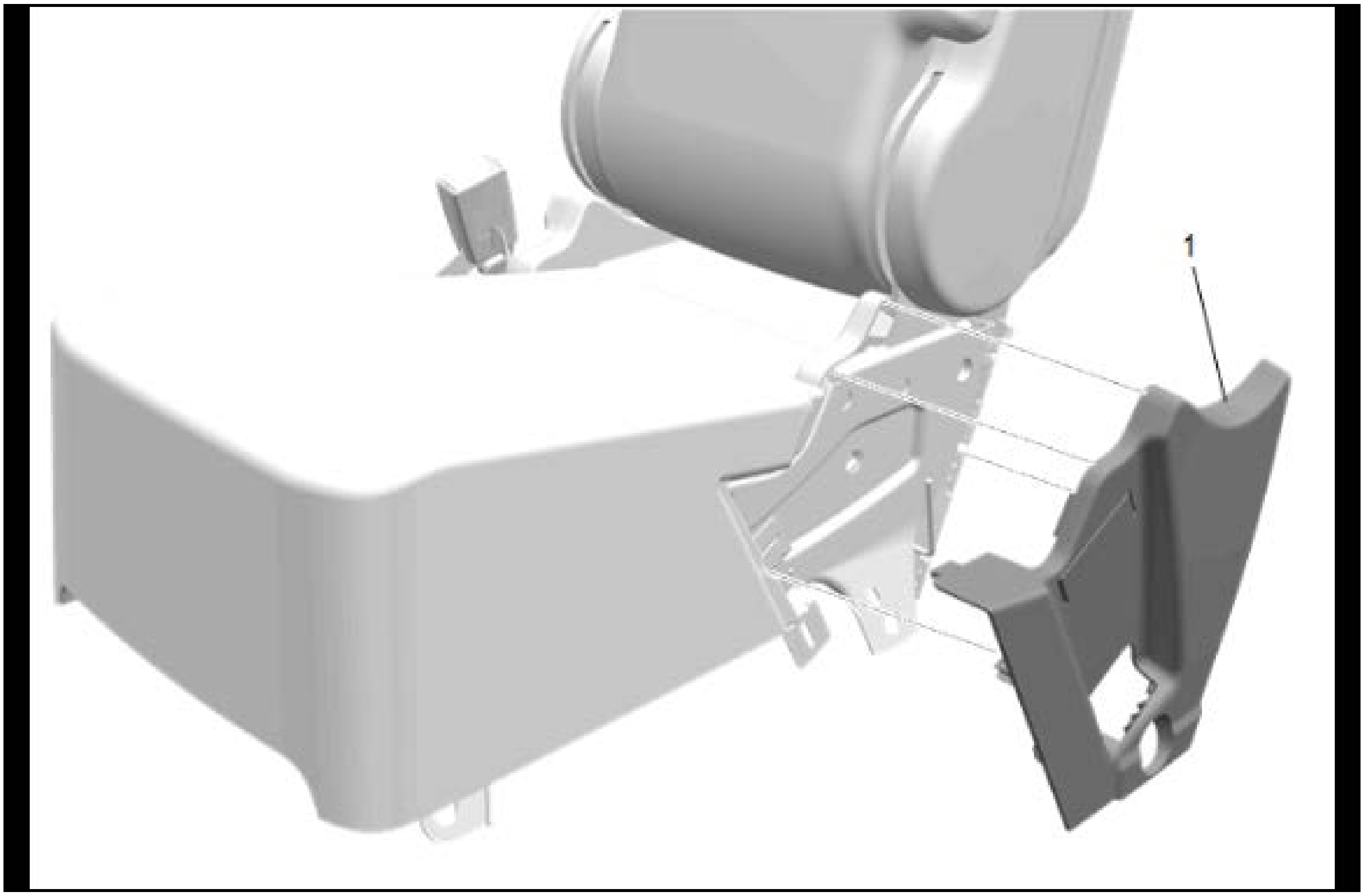
17. Front Seat Armrest Cup Holder (3) » Install
18. Front Seat Armrest Cup Holder Bolt (2) » Install and tighten [2x]
19. Front Center Seat Cup Holder (1) » Install



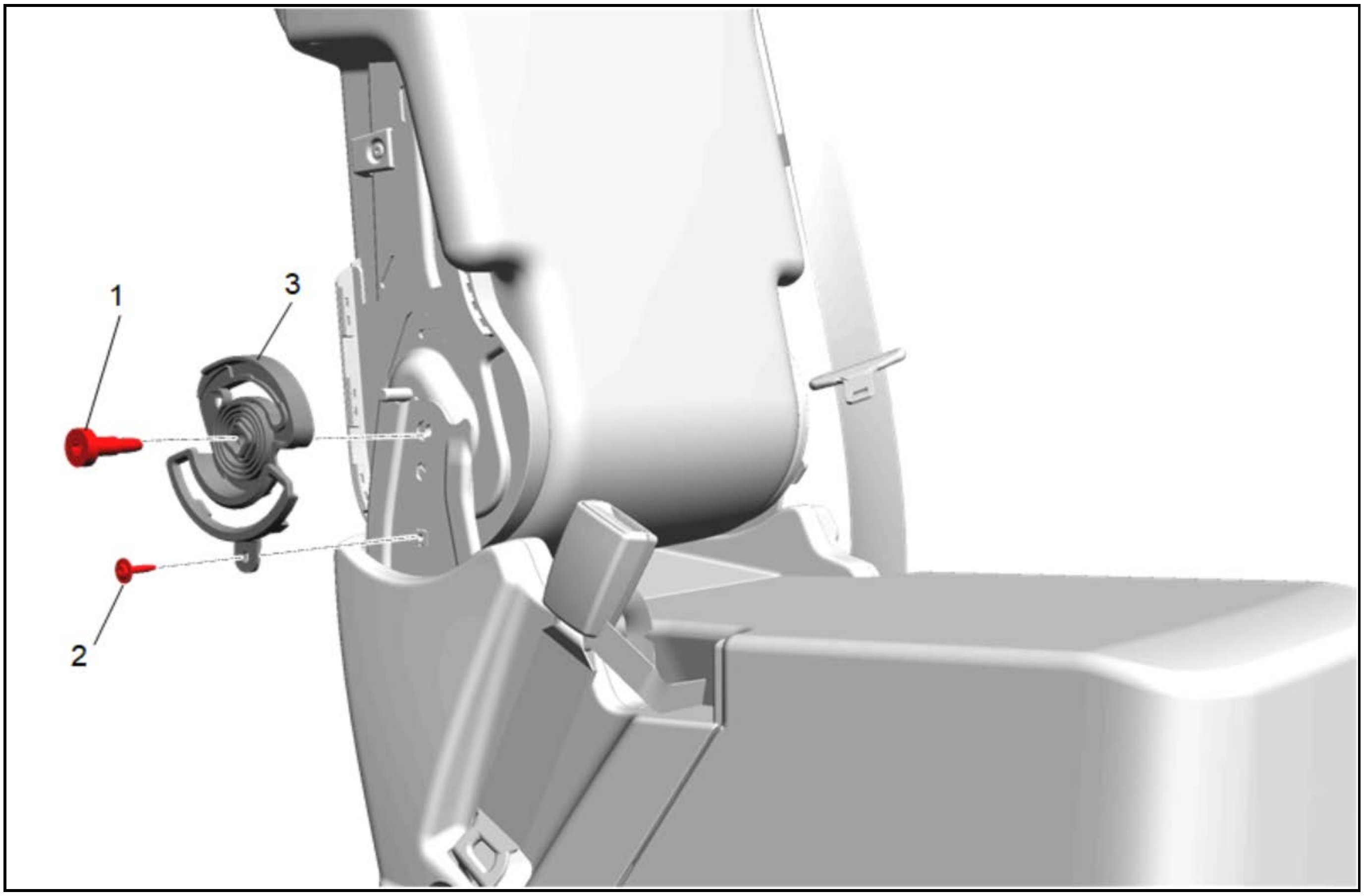
20. Front Seat Center Armrest Hinge Finish Inner Cover (1) » Install [2x]



21. Front Center Seat Armrest (2) » Install
22. Front Seat Center Armrest Bolt (1) » Install and tighten [2x]
23. Connect the latch release cable.

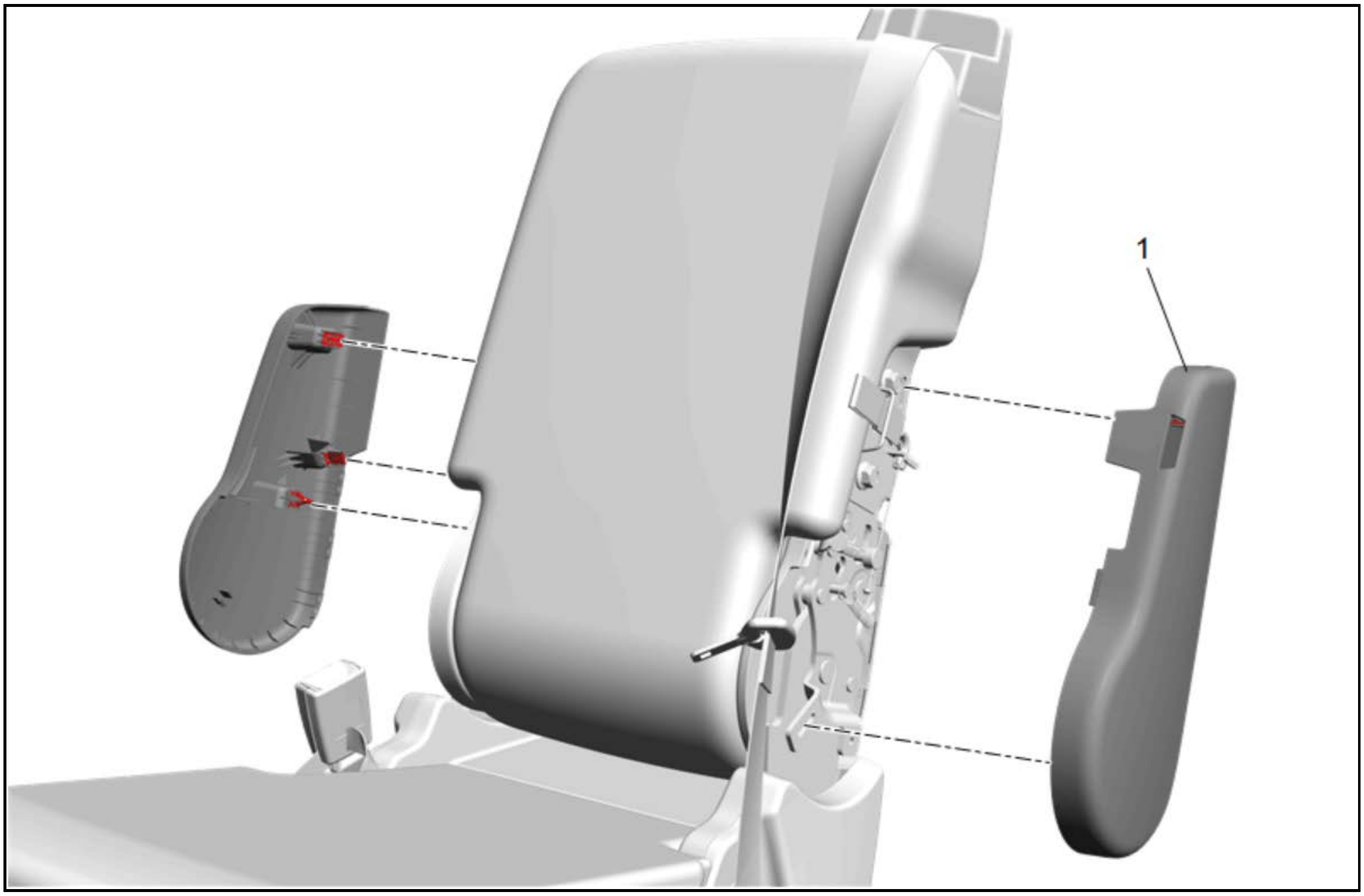


24. Front Seat Center Armrest Hinge Finish Cover - Lower (1) » Install
25. Front Seat Center Belt Anchor Plate » Install

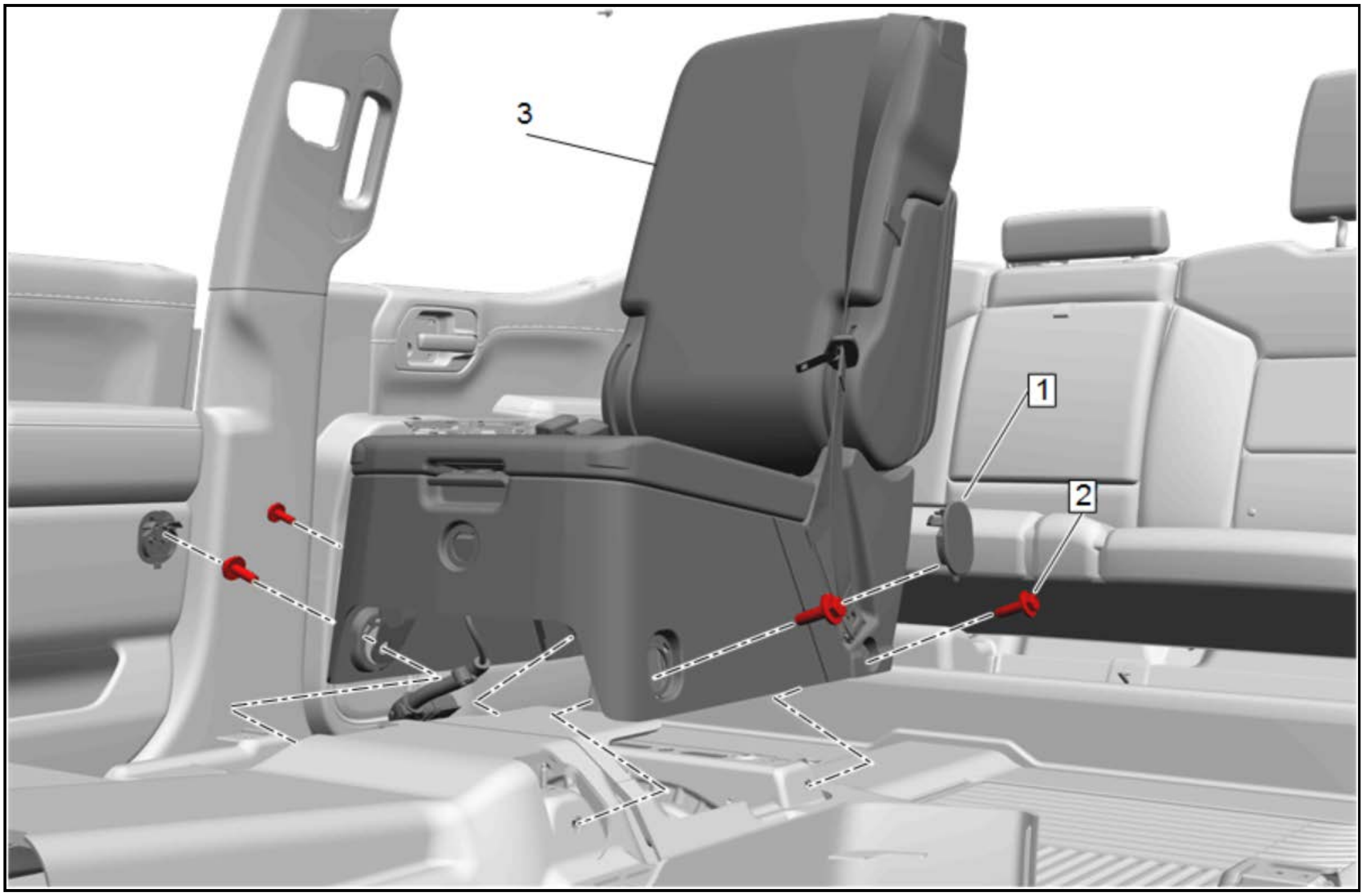


5282281

26. Front Seat Armrest Adjust Retainer (3) » Install
27. Front Seat Armrest Adjust Retainer Bolt (2) » Install and tighten
28. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    28.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    28.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    28.3. Apply thread locking adhesive to the external threads of the component.
    28.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
29. Front Seat Center Armrest Pivot Bolt (1) » Install and tighten



30. Front Seat Center Armrest Hinge Finish Cover - Upper (1) » Install [2x]

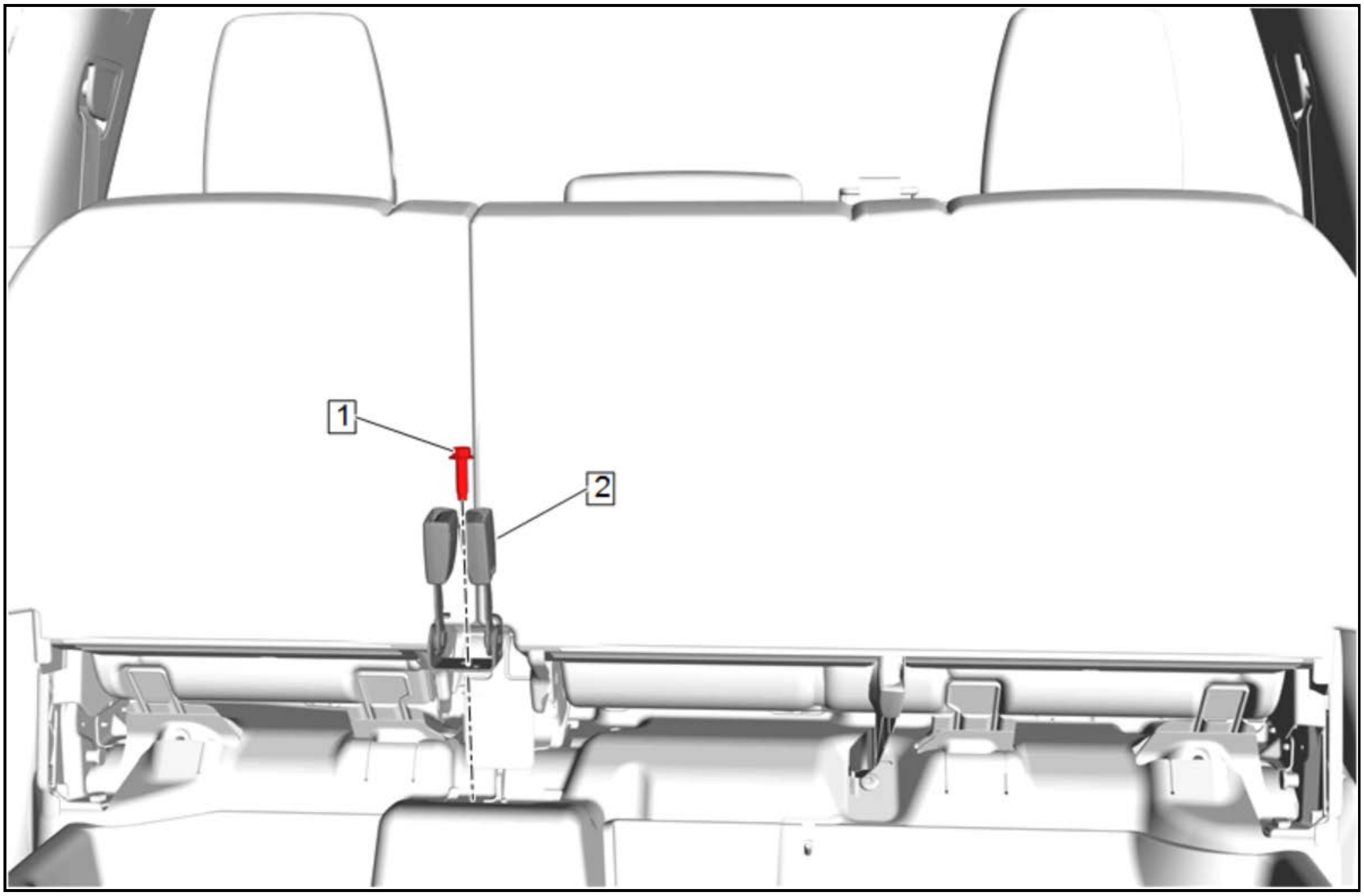


31. Front Center Seat (3) » Install

Rear Seat Belt Buckle Replacement

Object-ID=6239405 Owner=Semposki, Scott LMD=10-Jan-2023 LMB=Schaller, Dawn

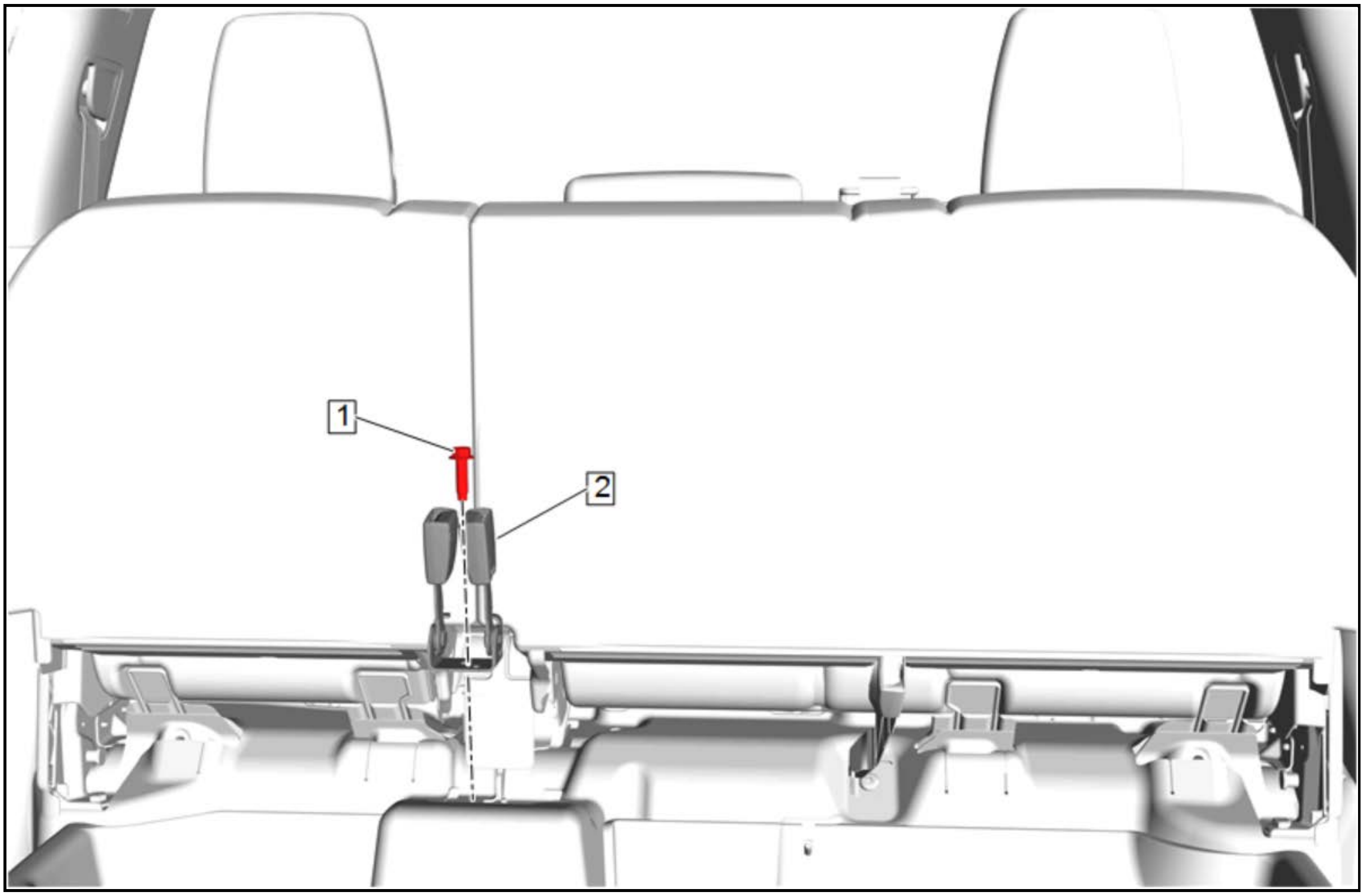
Removal Procedure



5034917

1. Place both rear seat cushions in the folded up position.
2. Disconnect the electrical connectors.
3. Rear Seat Belt Buckle Bolt (1) » Remove
4. Rear Seat Belt Buckle (2) » Remove

Installation Procedure

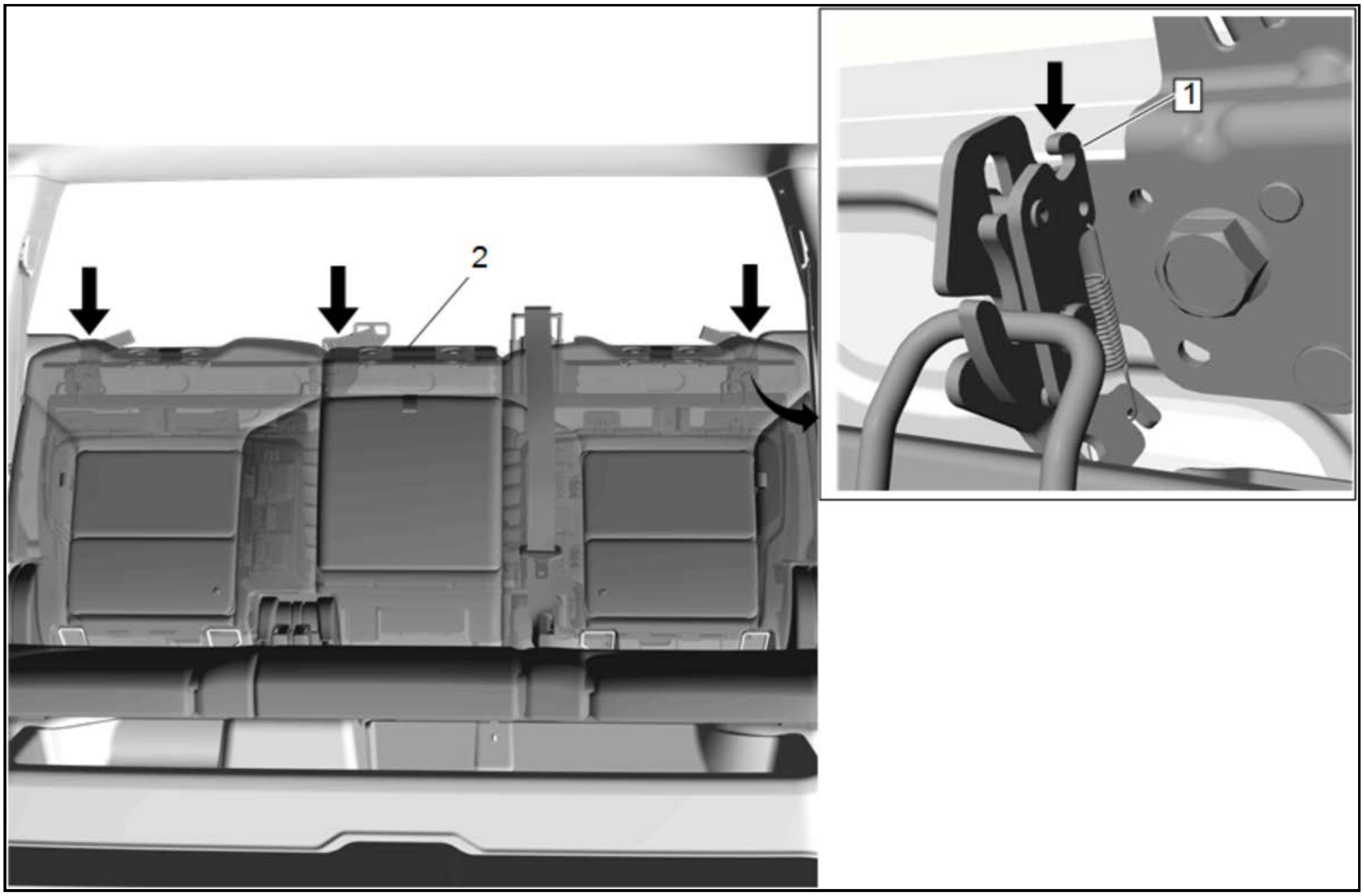


1. Rear Seat Belt Buckle (2) » Install
2. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
   - 2.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
   - 2.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
   - 2.3. Remove loose debris from internal and external threads using compressed air.
   - 2.4. Apply liquid thread locking adhesive in a strip along half of the length of the external threads, starting at the tip, just prior to installation. *Adhesives, Fluids, Lubricants, and Sealers on page 8-343*
3. Rear Seat Belt Buckle Bolt (1) » Install and tighten — *Fastener Specifications on page 8-341*
4. Connect the electrical connectors.
5. Return both rear seat cushions to the original position.

Rear Seat Center Belt Retractor Replacement

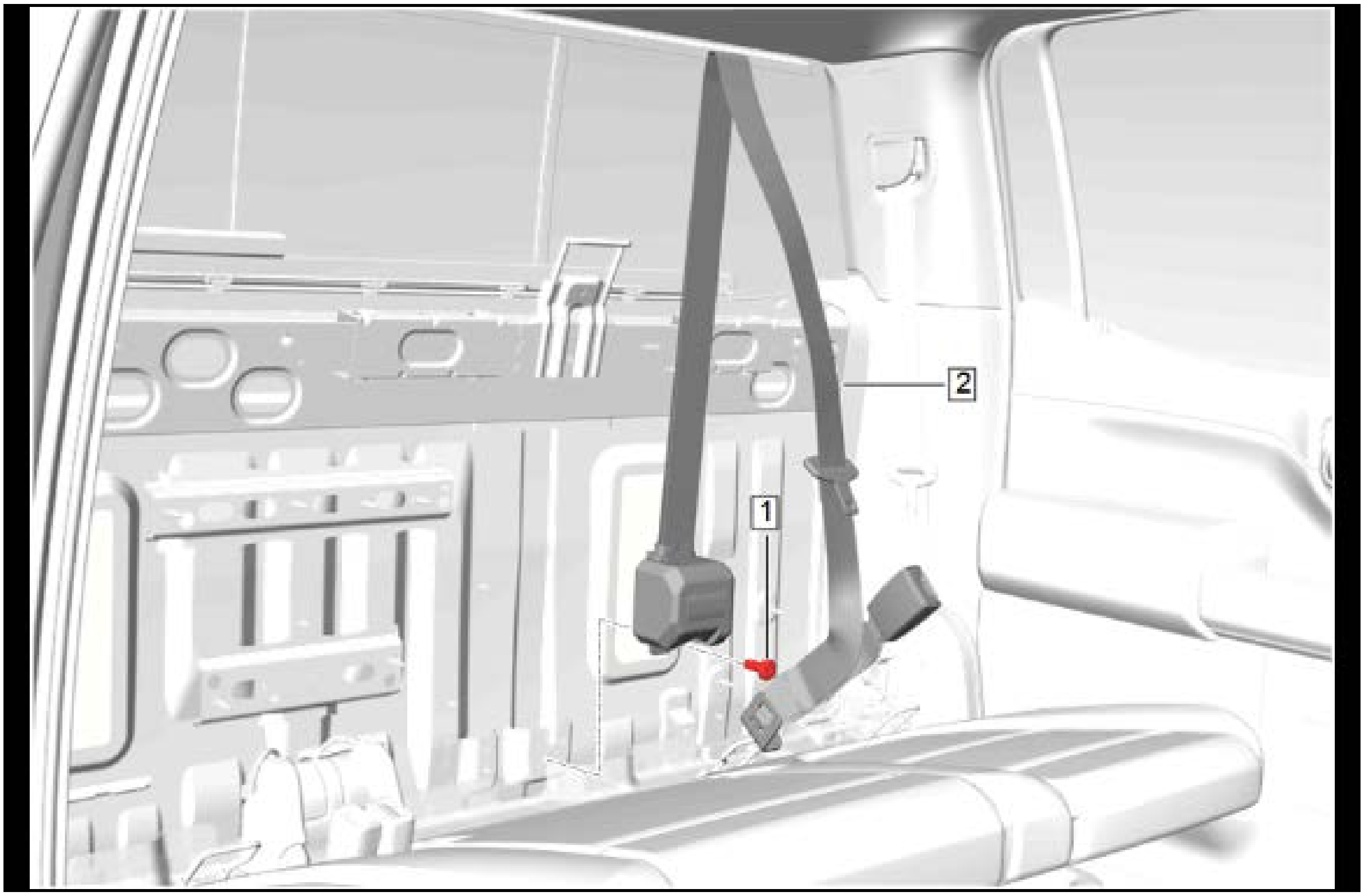
Object-ID=6239409 Owner=Semposki, Scott LMD=10-Jan-2023 LMB=Schaller, Dawn

Removal Procedure



5034921

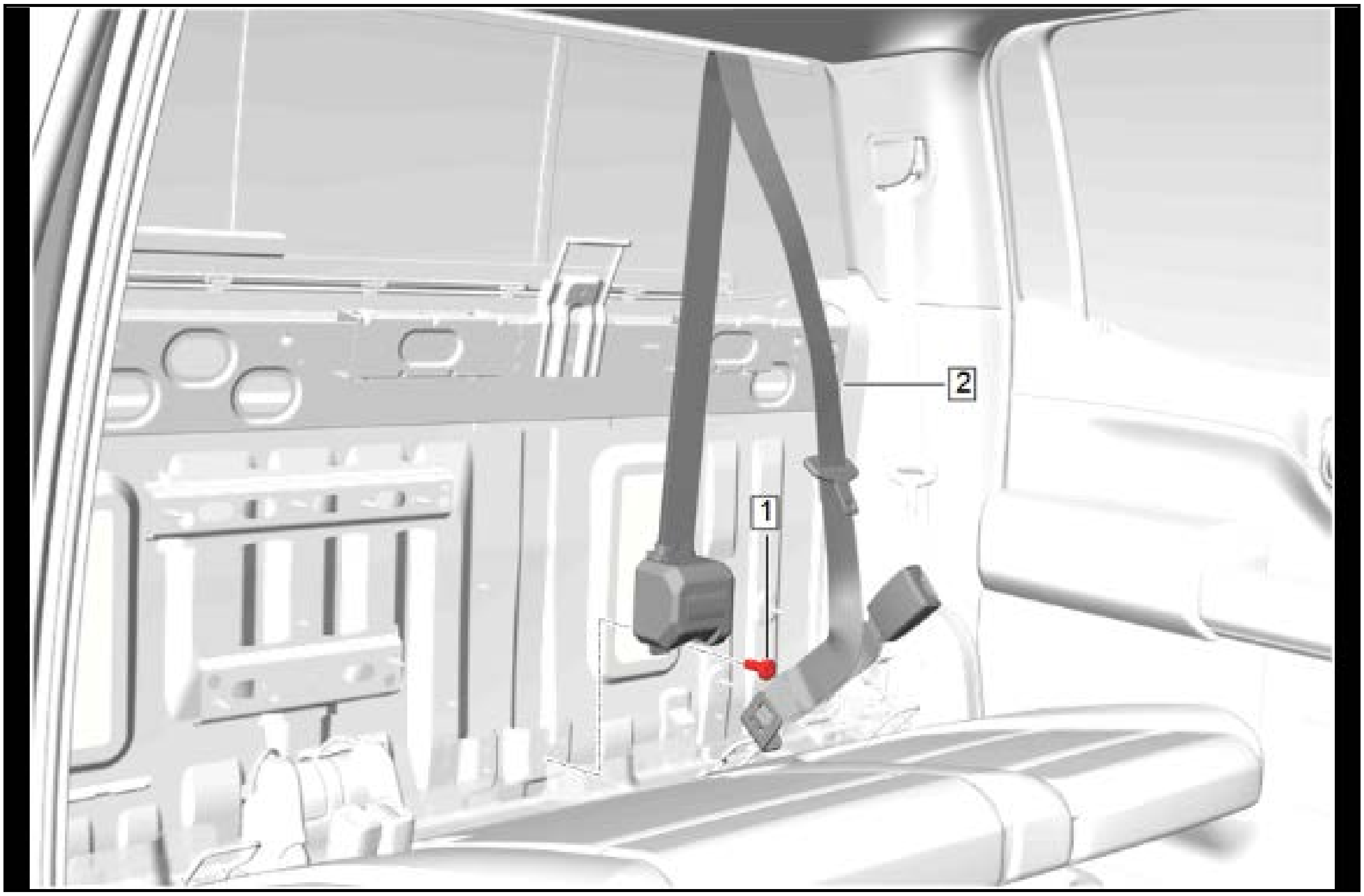
1. Rear Seat Back Cushion (2) » Remove



5661159

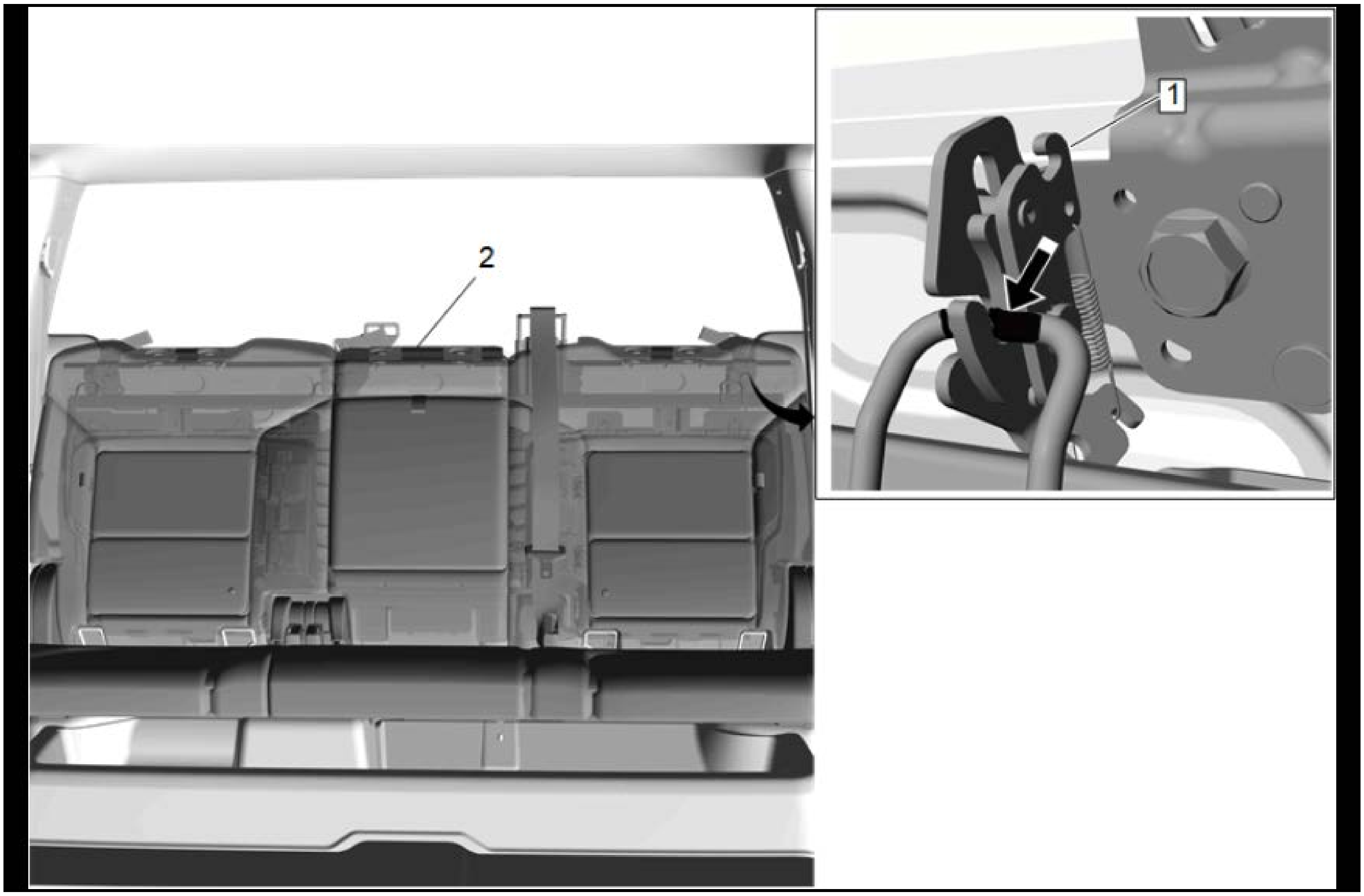
2. Reposition the rear floor panel carpeting as necessary to access the bolt.
3. Rear Seat Center Belt Retractor Bolt (1) » Remove
4. Disconnect the electrical connector.
5. Feed the rear seat center belt, anchor plate, and buckle through the rear seat belt guide to remove.
6. Rear Seat Center Belt Retractor (2) » Remove

Installation Procedure



5661159

1. Rear Seat Center Belt Retractor (2) » Install
2. Connect the electrical connector.
3. Feed the rear seat center belt, anchor plate, and buckle through the rear seat belt guide to install.
4. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    - 4.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    - 4.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    - 4.3. Remove loose debris from internal and external threads using compressed air.
    - 4.4. Apply liquid thread locking adhesive in a strip along half of the length of the external threads, starting at the tip, just prior to installation. *Adhesives, Fluids, Lubricants, and Sealers on page 8-343*
5. Rear Seat Center Belt Retractor Bolt (1) » Install and tighten — *Fastener Specifications on page 8-341*
6. Return the rear floor panel carpeting to the original position.



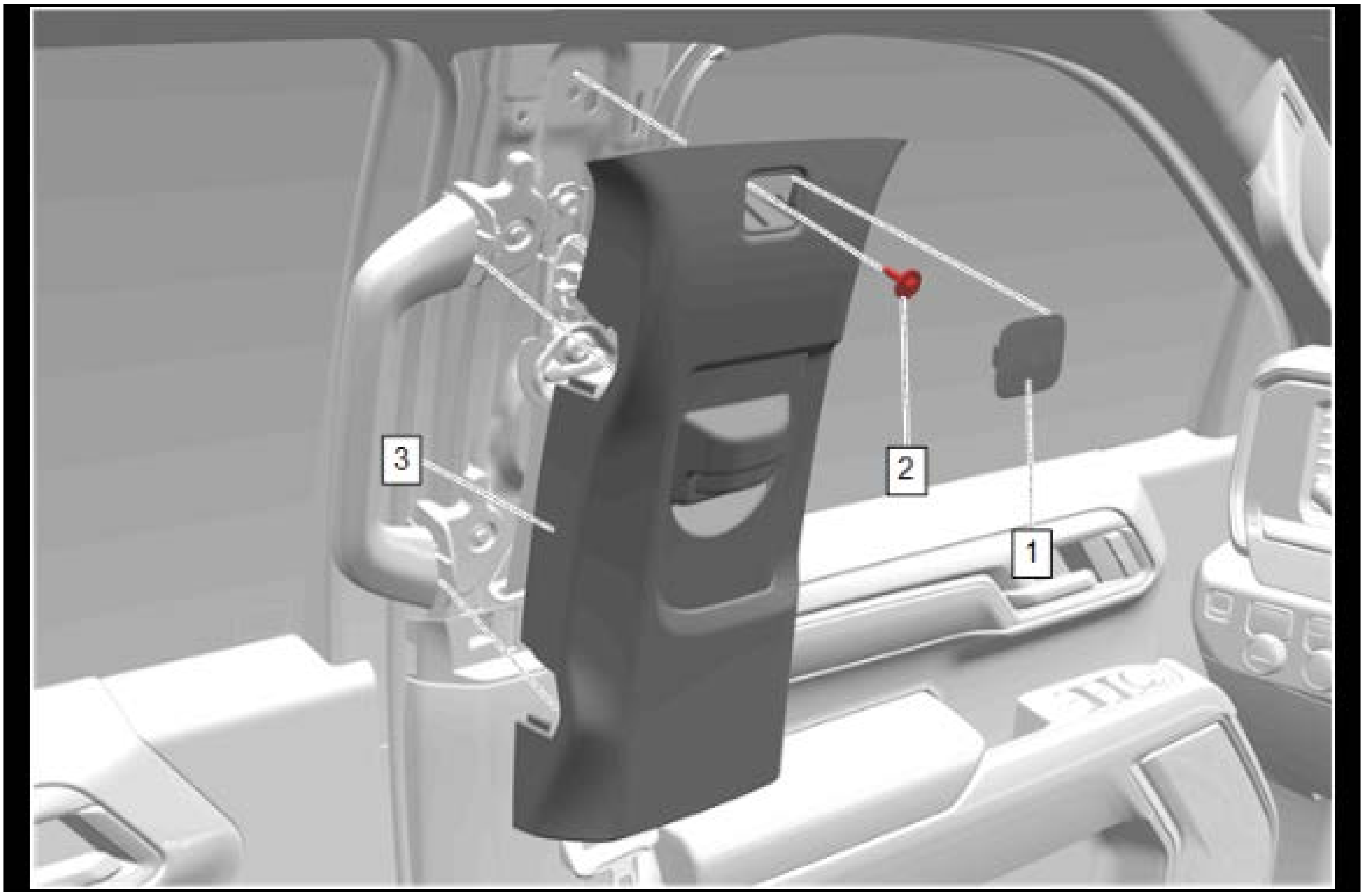
7. Rear Seat Back Cushion (2) » Install

Front Seat Belt Guide Adjuster Replacement

Object-ID=5875507 Owner=Fuller, Sean LMD=15-Jul-2021 LMB=McMillan, Tim

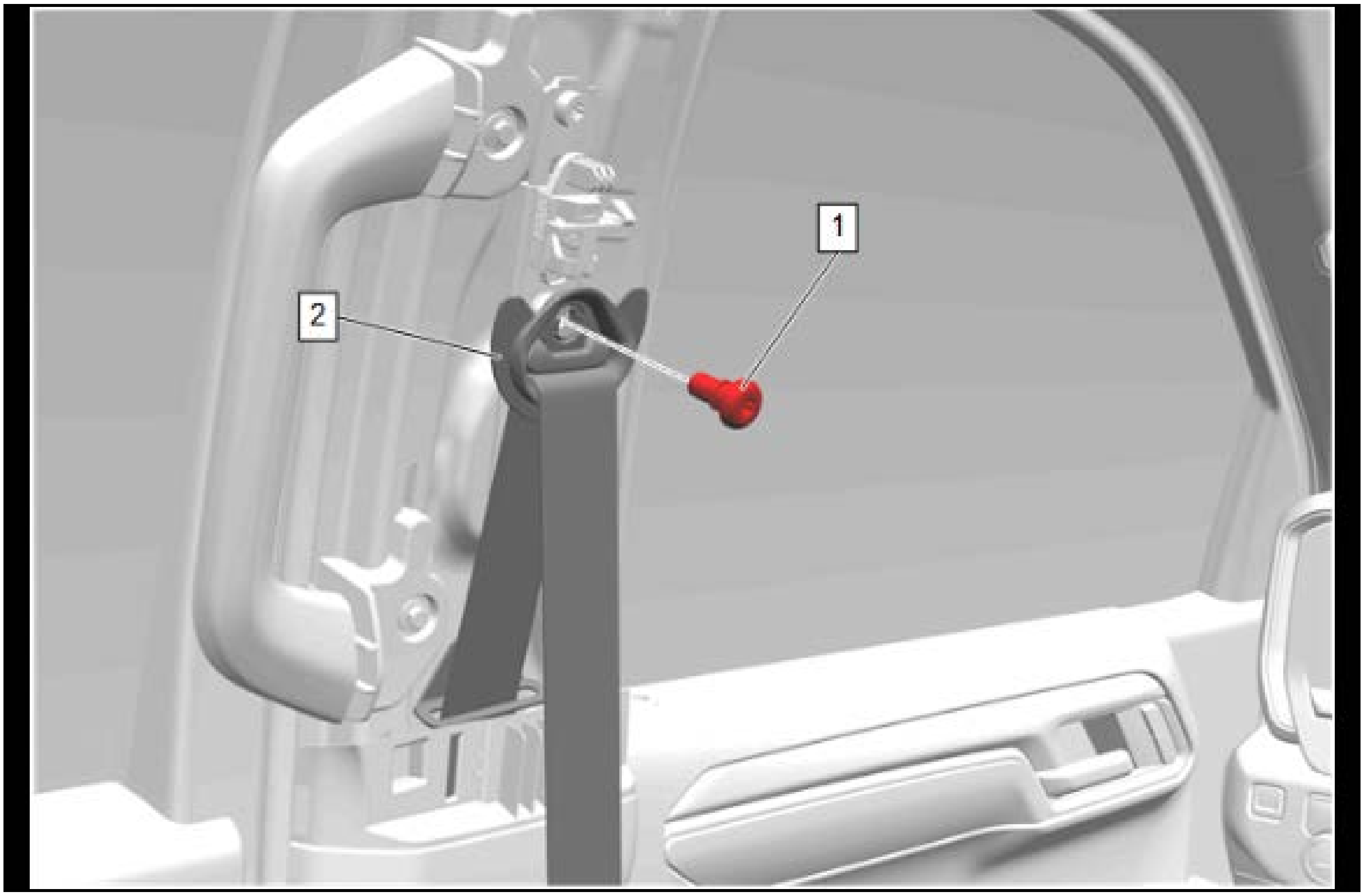
Removal Procedure

Caution: SIO-ID=2053558 LMD=25-Jan-2008 Use care when working around the head curtain inflator module. Sharp tools may puncture the curtain airbag. If the head curtain inflator module is damaged in any way, it must be replaced.



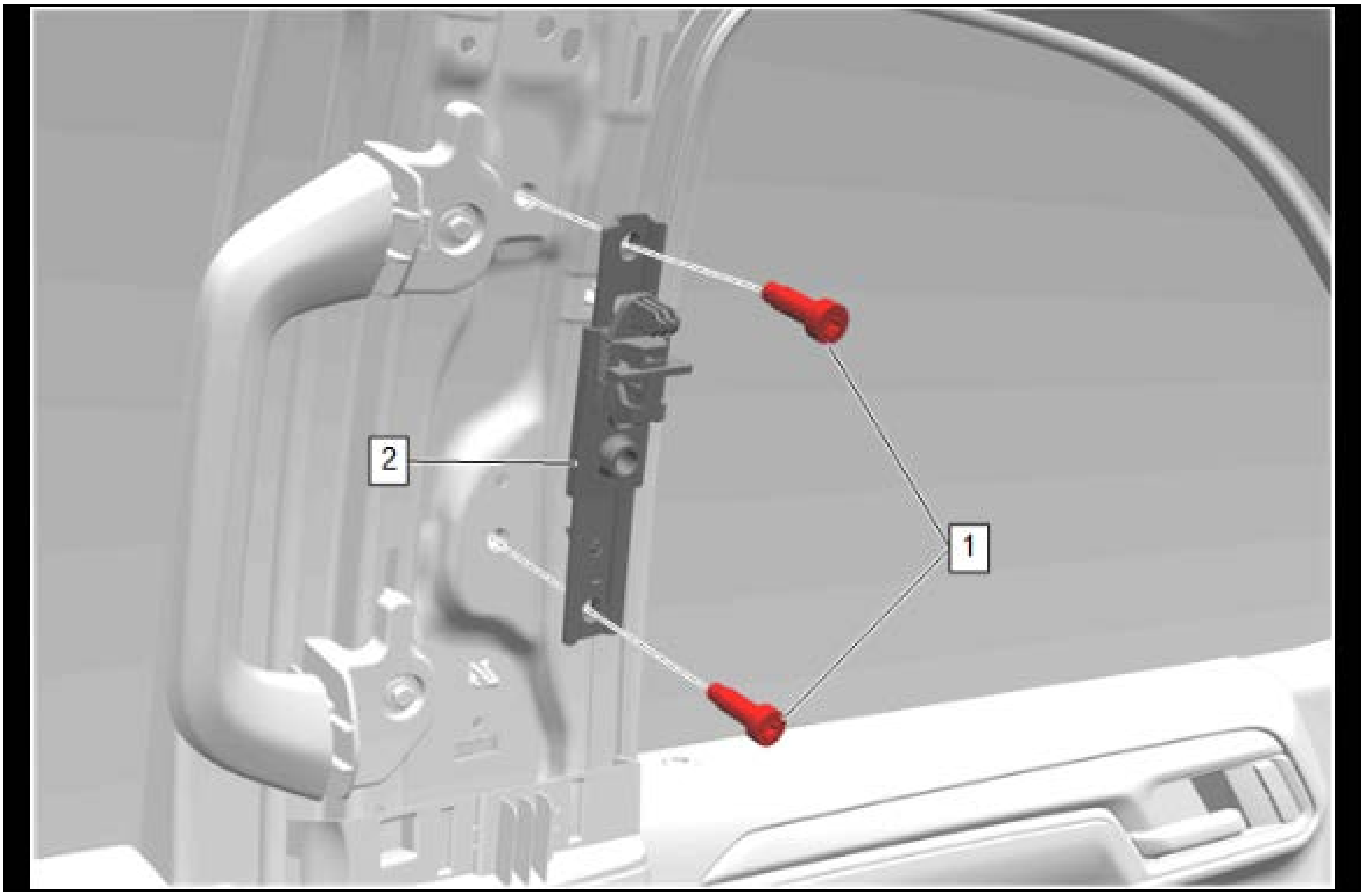
5875505

1. Move the front seat fully forward.
2. Center Pillar Upper Trim Panel Bolt Cap (1) » Remove
3. Center Pillar Upper Garnish Molding Bolt (2) » Remove
4. Pull the trim panel (3) toward the inside of the vehicle to disengage the retaining clips.
5. Center Pillar Upper Trim Panel (3) » Reposition



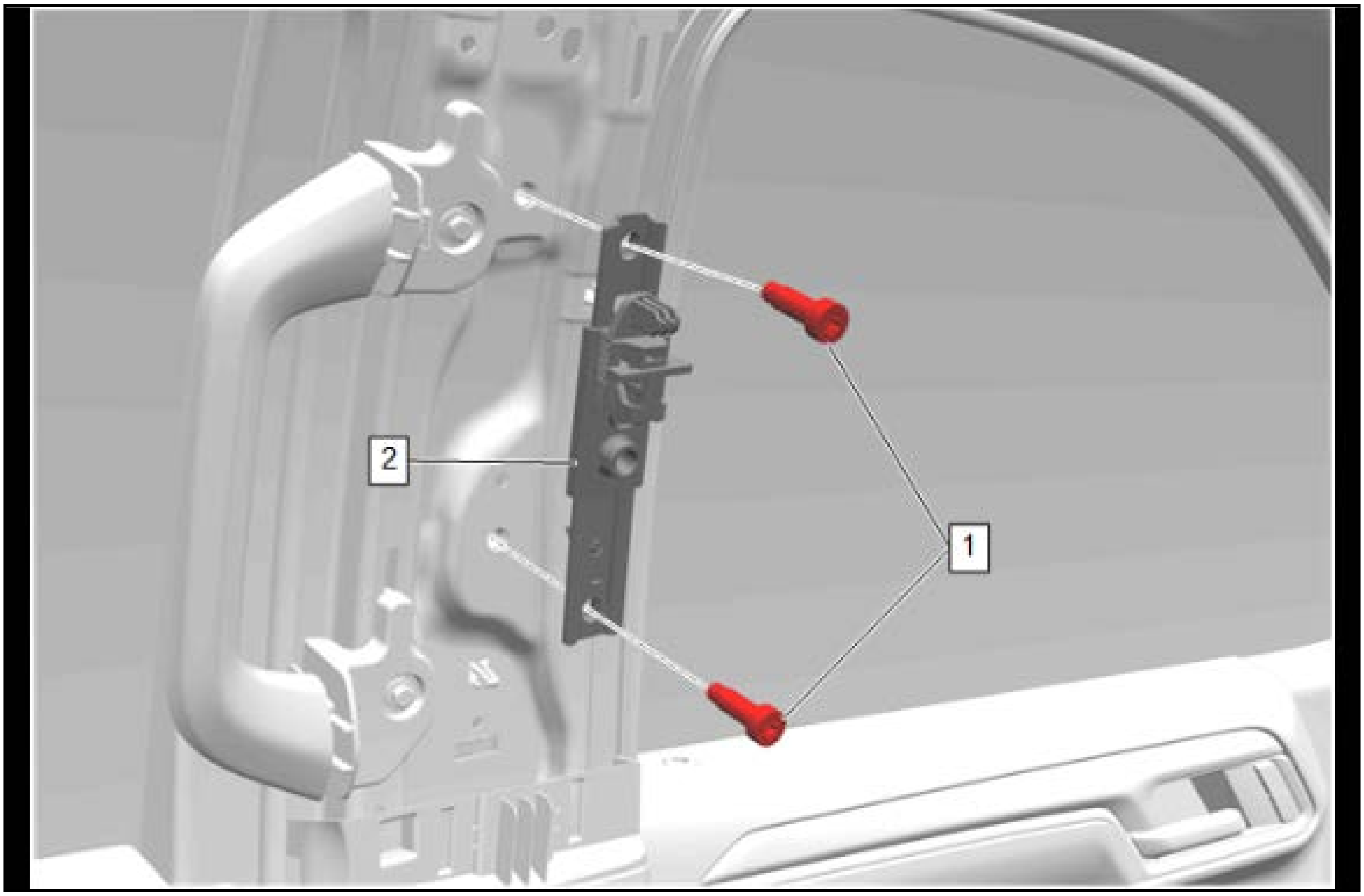
5875512

6. Front Seat Belt Retractor D Ring Bolt (1) » Remove
7. Front Seat Belt Retractor (2) » Reposition

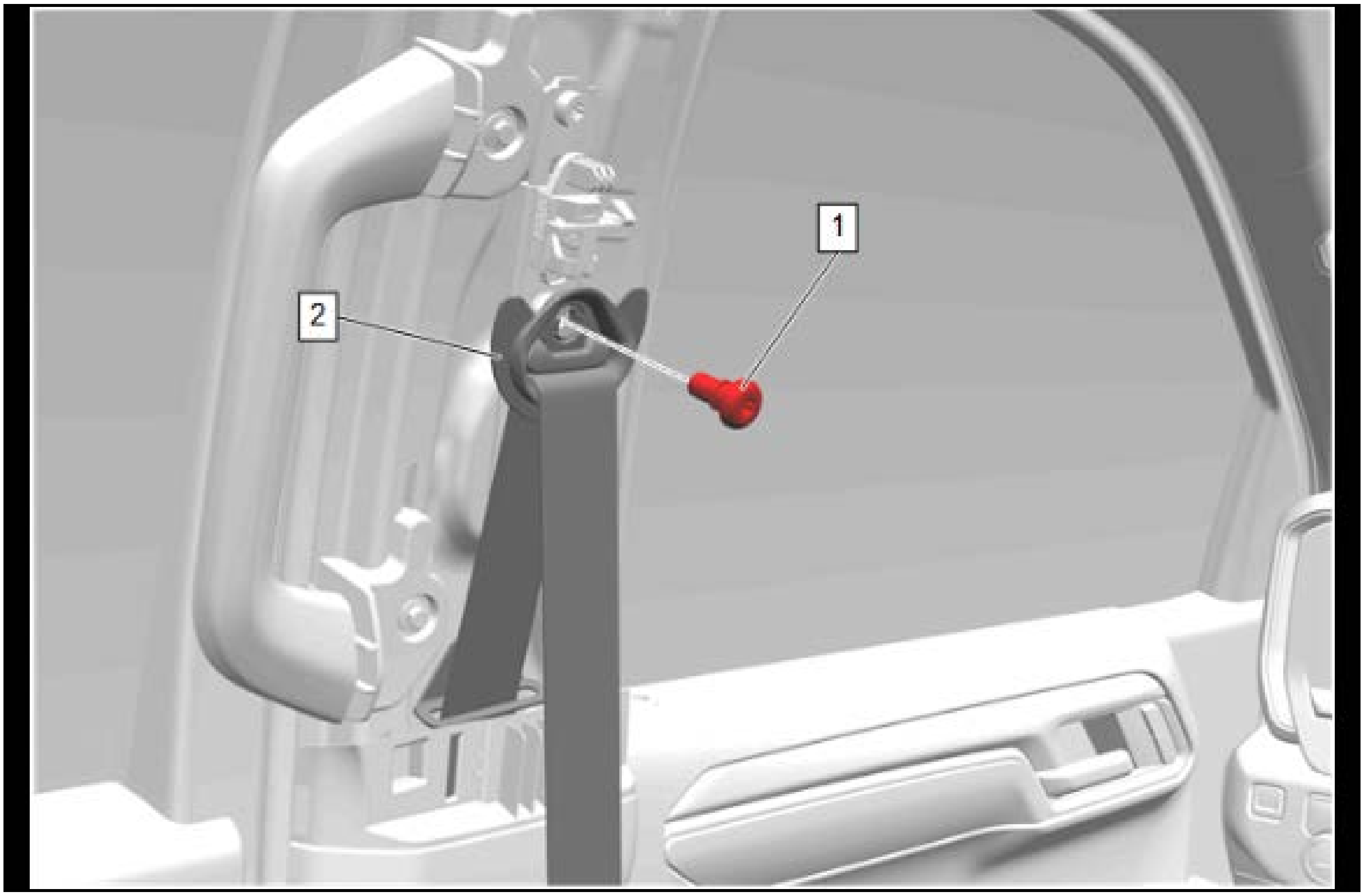


8. Front Seat Belt Adjust Bolt (1) » Remove [2x]
9. Front Seat Belt Guide Adjuster (2) » Remove

Installation Procedure

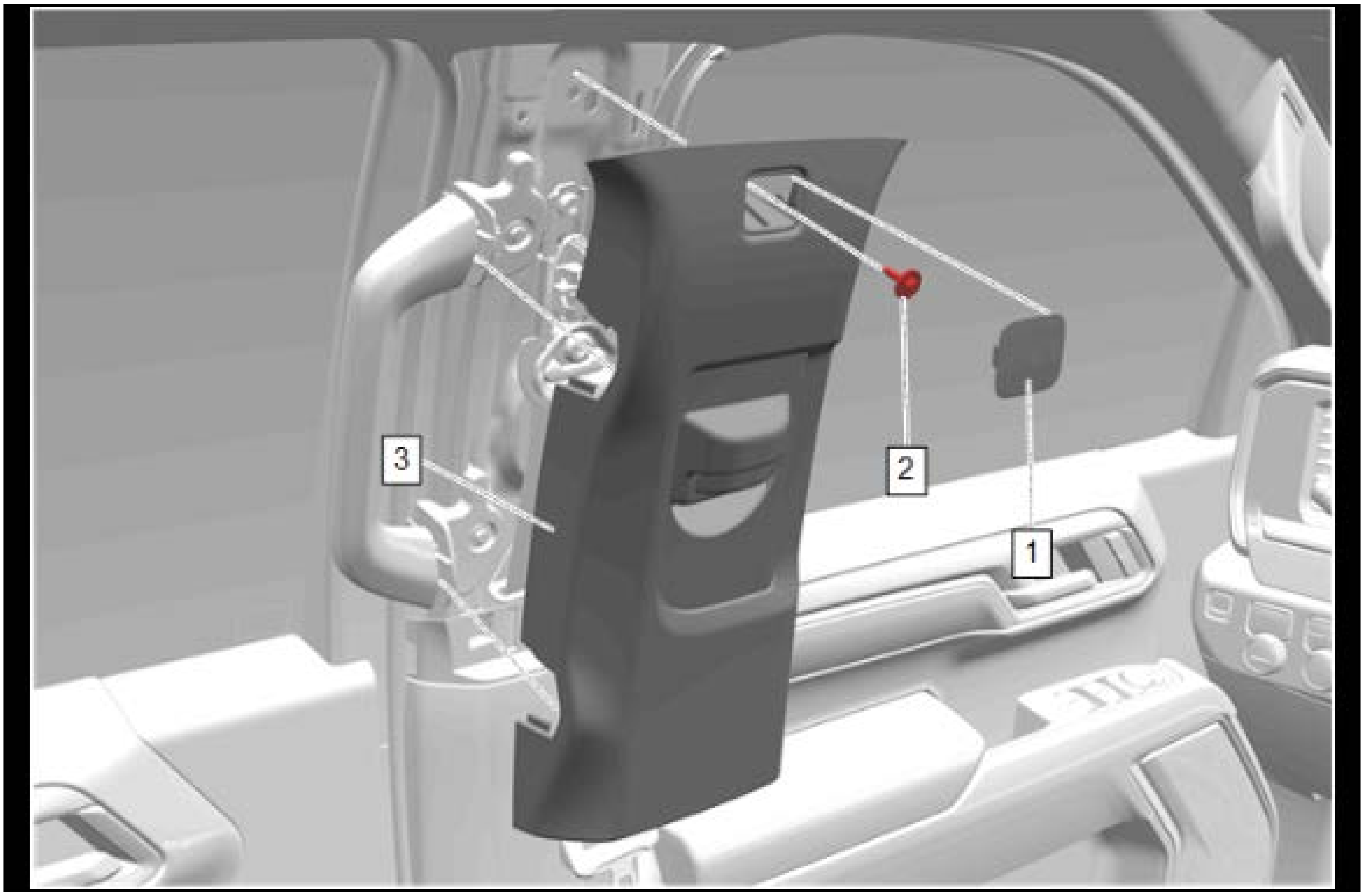


1. Front Seat Belt Guide Adjuster (2) » Install
2. If NEW threaded components are being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded components are reused, prepare the threaded components using the following steps:
   2.1. Remove any loose cured adhesive from the external threads of the components using a lint free cloth.
   2.2. Thread the cleaned components into the internal mating threads and remove to loosen trapped cured adhesive.
   2.3. Apply thread locking adhesive to the external threads of the components. *Adhesives, Fluids, Lubricants, and Sealers on page 8-343*
   2.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
3. Front Seat Belt Adjust Bolt (1) » Install and tighten [2x] — *Fastener Specifications on page 8-341*



5875512

4. Front Seat Belt Retractor (2) » Install
5. If NEW threaded components are being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded components are reused, prepare the threaded components using the following steps:
   5.1. Remove any loose cured adhesive from the external threads of the components using a lint free cloth.
   5.2. Thread the cleaned components into the internal mating threads and remove to loosen trapped cured adhesive.
   5.3. Apply thread locking adhesive to the external threads of the components. *Adhesives, Fluids, Lubricants, and Sealers on page 8-432*
   5.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
6. Front Seat Belt Retractor D Ring Bolt (1) » Install and tighten — *Fastener Specifications on page 8-427*



5875505

7. Center Pillar Upper Trim Panel (3) » Install
8. Center Pillar Upper Garnish Molding Bolt (2) » Install and tighten
9. Center Pillar Upper Trim Panel Bolt Cap (1) » Install
10. Return the front seat to the original position.

Rear Seat Belt Retractor Replacement

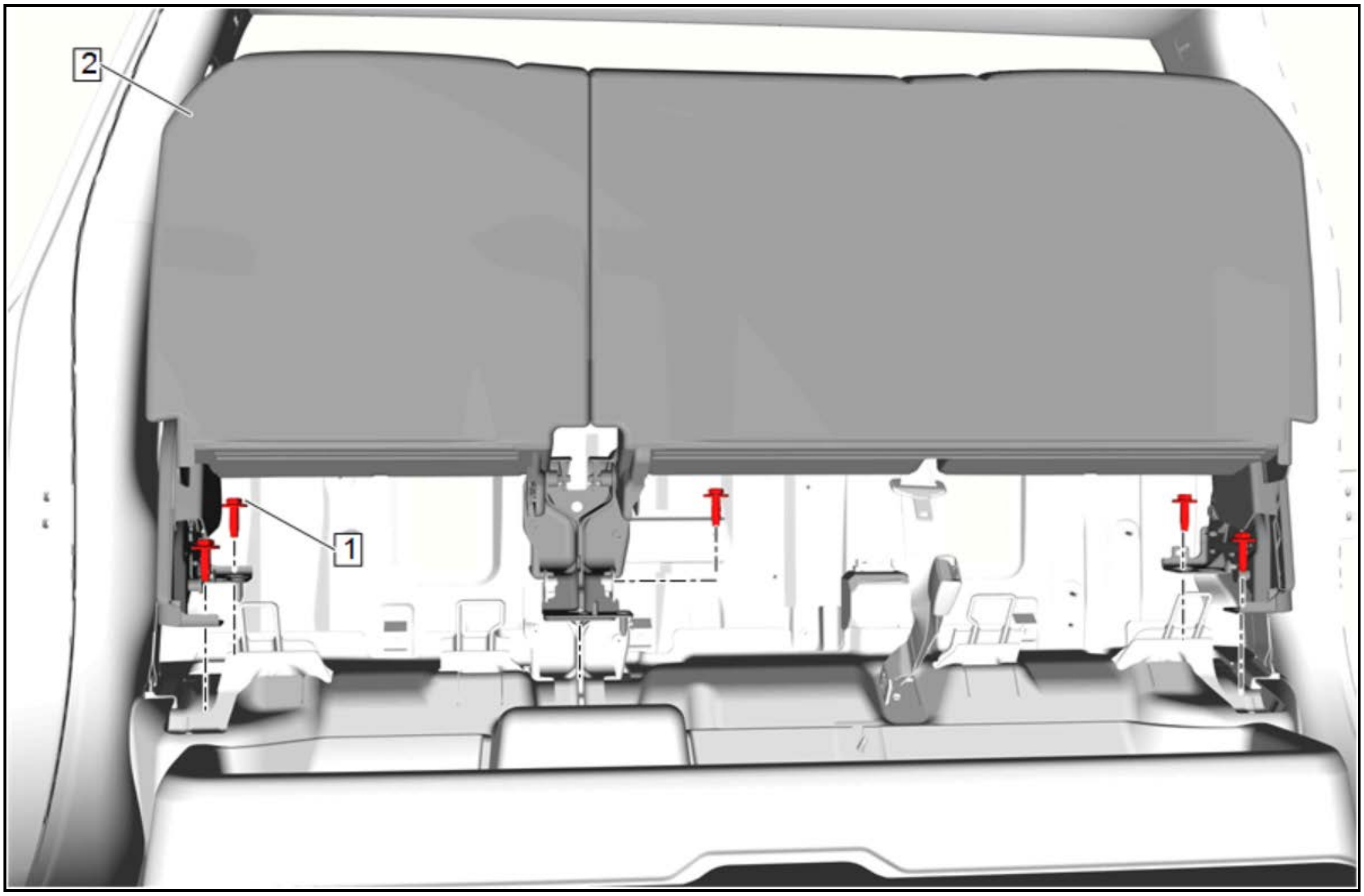
Object-ID=5662694 Owner=Palkovitz, John LMD=03-Feb-2021 LMB=Schaller, Dawn

Caution: SIO-ID=2053560 LMD=25-Jan-2008 If a vehicle is equipped with a head curtain inflator module ensure that the inflator module and tether are undamaged. If tether or curtain airbag are damaged in any way, they must be replaced.

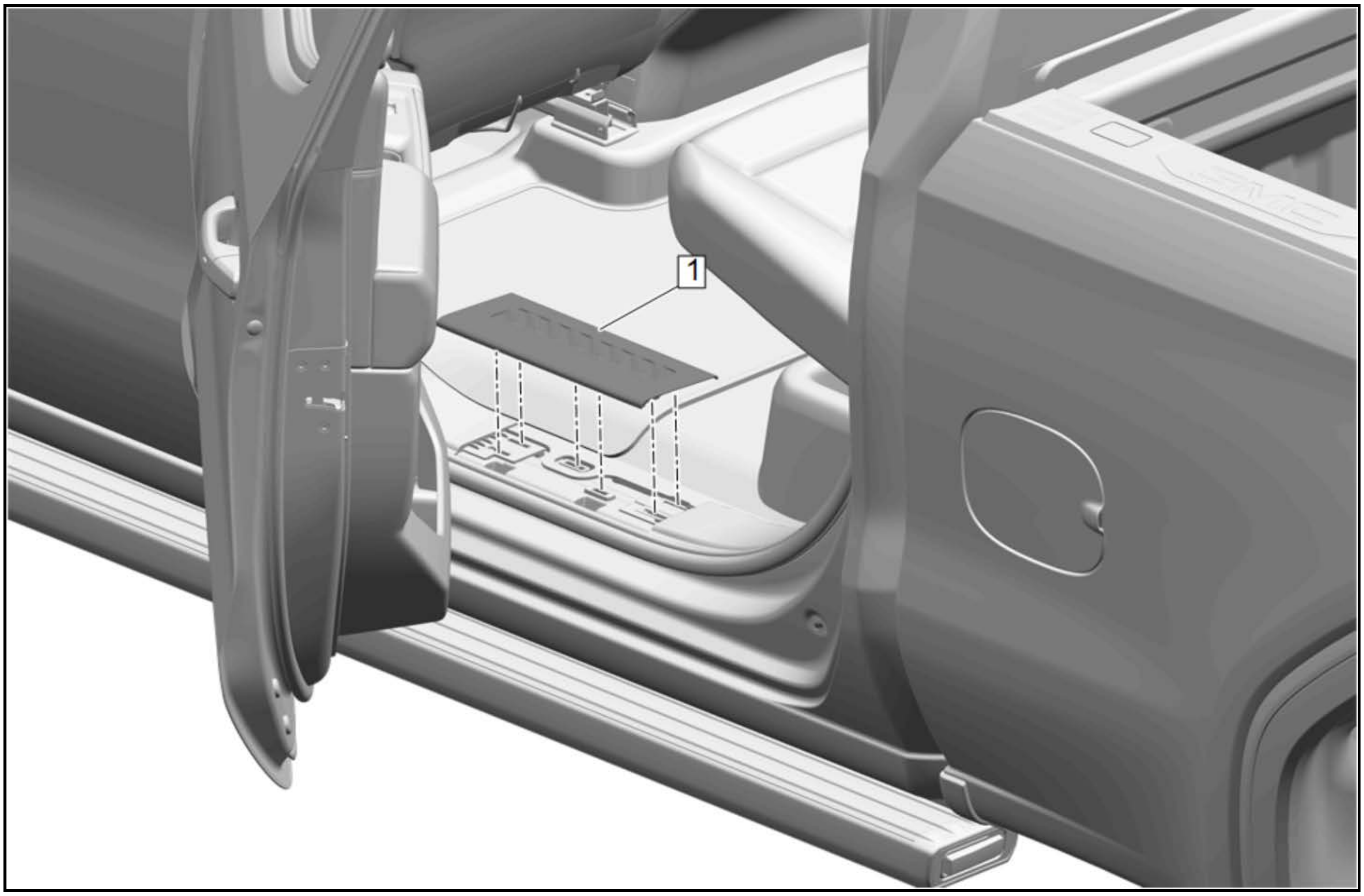
Caution: SIO-ID=2053558 LMD=25-Jan-2008 Use care when working around the head curtain inflator module. Sharp tools may puncture the curtain airbag. If the head curtain inflator module is damaged in any way, it must be replaced.

Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*

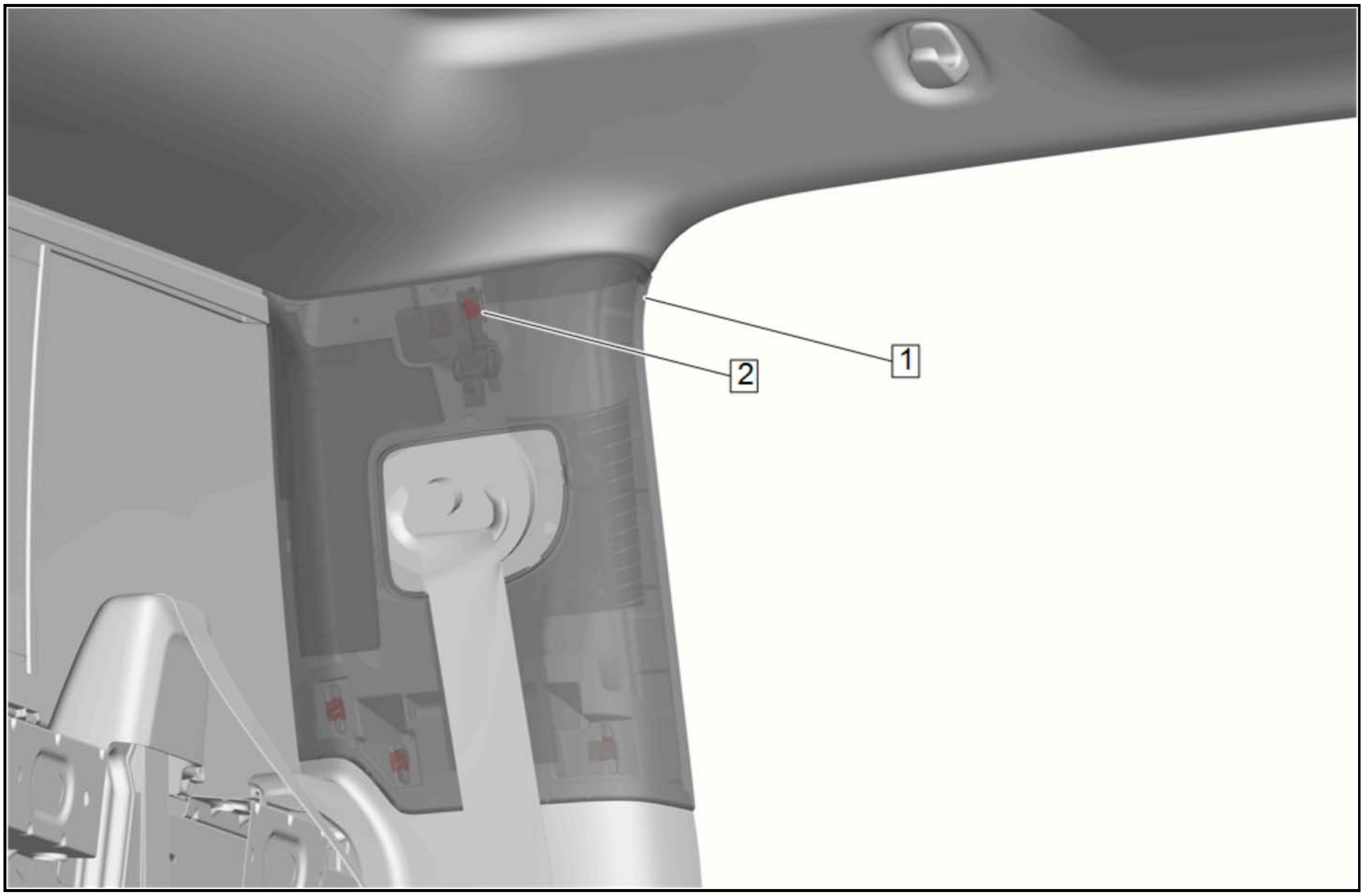


2. Rear Seat Cushion (2) » Remove



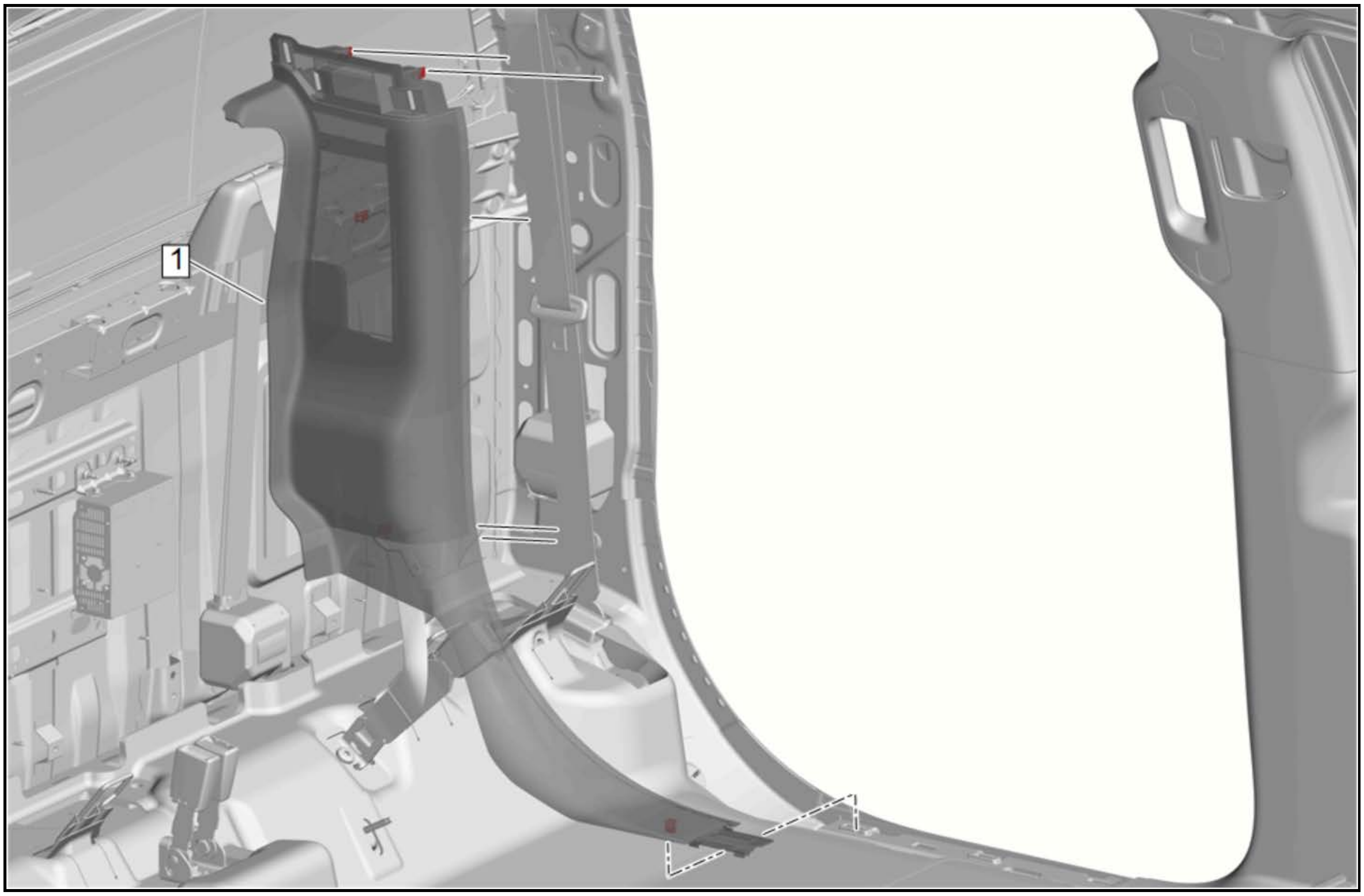
5001935

3. Using a flat-bladed plastic trim tool, release the retaining clips.
4. Rear Side Door Sill Garnish Molding (1) » Remove



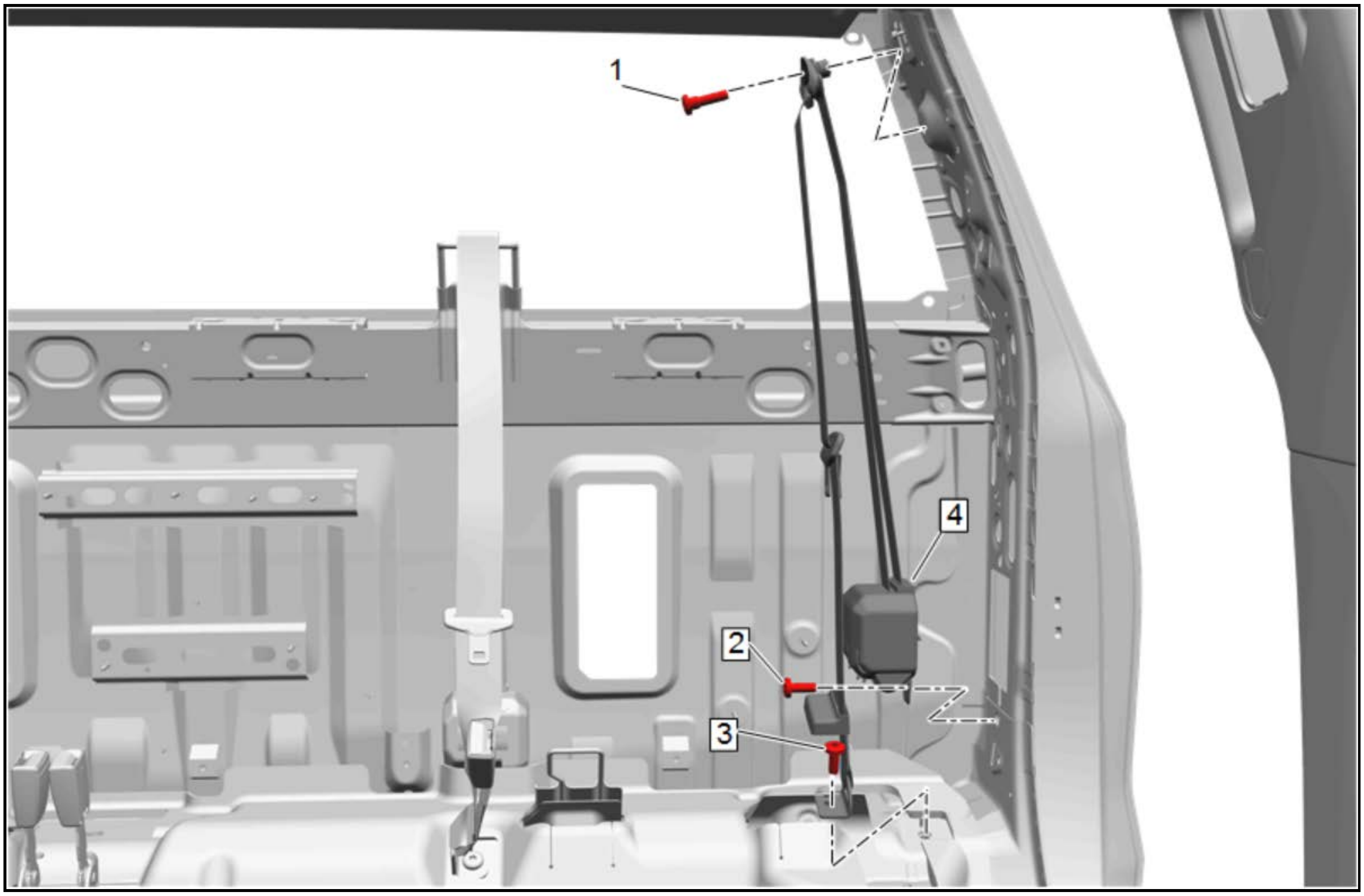
5027777

5. Pull the body side rear window garnish molding (1) rearwards to release the tether from the body side inner frame.
6. Access the quarter window trim finish panel bolt (2) which is located on the backside of the rear window garnish molding (1) and secures the tether to the body side inner frame.
7. Quarter Window Trim Finish Panel Bolt (2) » Remove
8. Body Side Rear Window Garnish Molding (1) » Reposition



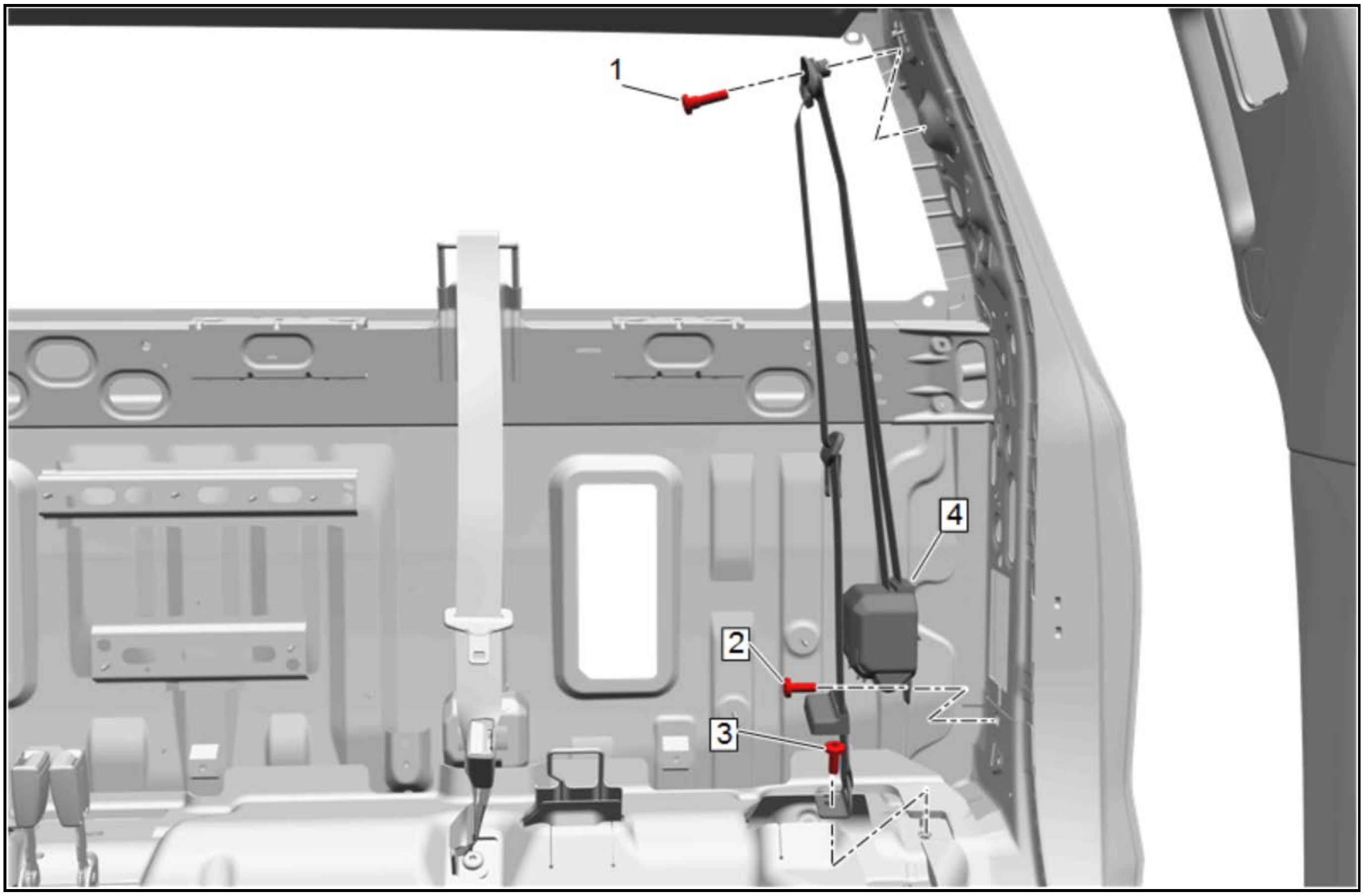
5028844

9. Starting at the top and working down with a trim tool, grasp the body lock pillar garnish molding (1) and gently pull the panel away from the body to release the retainers.
10. Body Lock Pillar Garnish Molding (1) » Remove



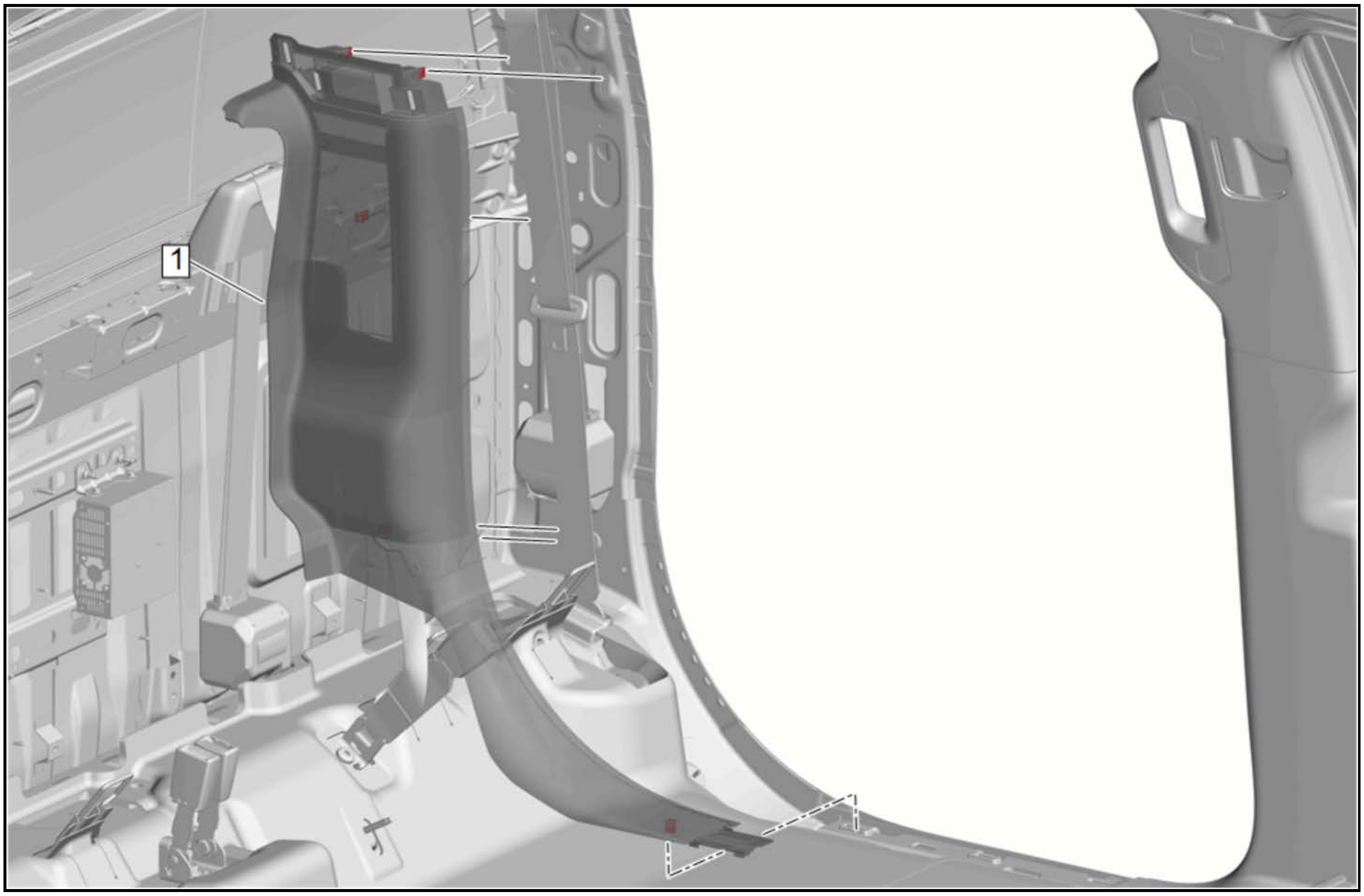
11. Rear Seat Belt Guide Bolt (1) » Remove
12. Rear Seat Belt Retractor Bolt (2) » Remove
13. Reposition the rear floor panel carpeting as necessary to access the bolt.
14. Rear Seat Belt Anchor Plate Bolt (3) » Remove
15. Feed the rear seat belt and anchor plate through the body side rear window garnish molding to remove.
16. Rear Seat Belt Retractor (4) » Remove

Installation Procedure

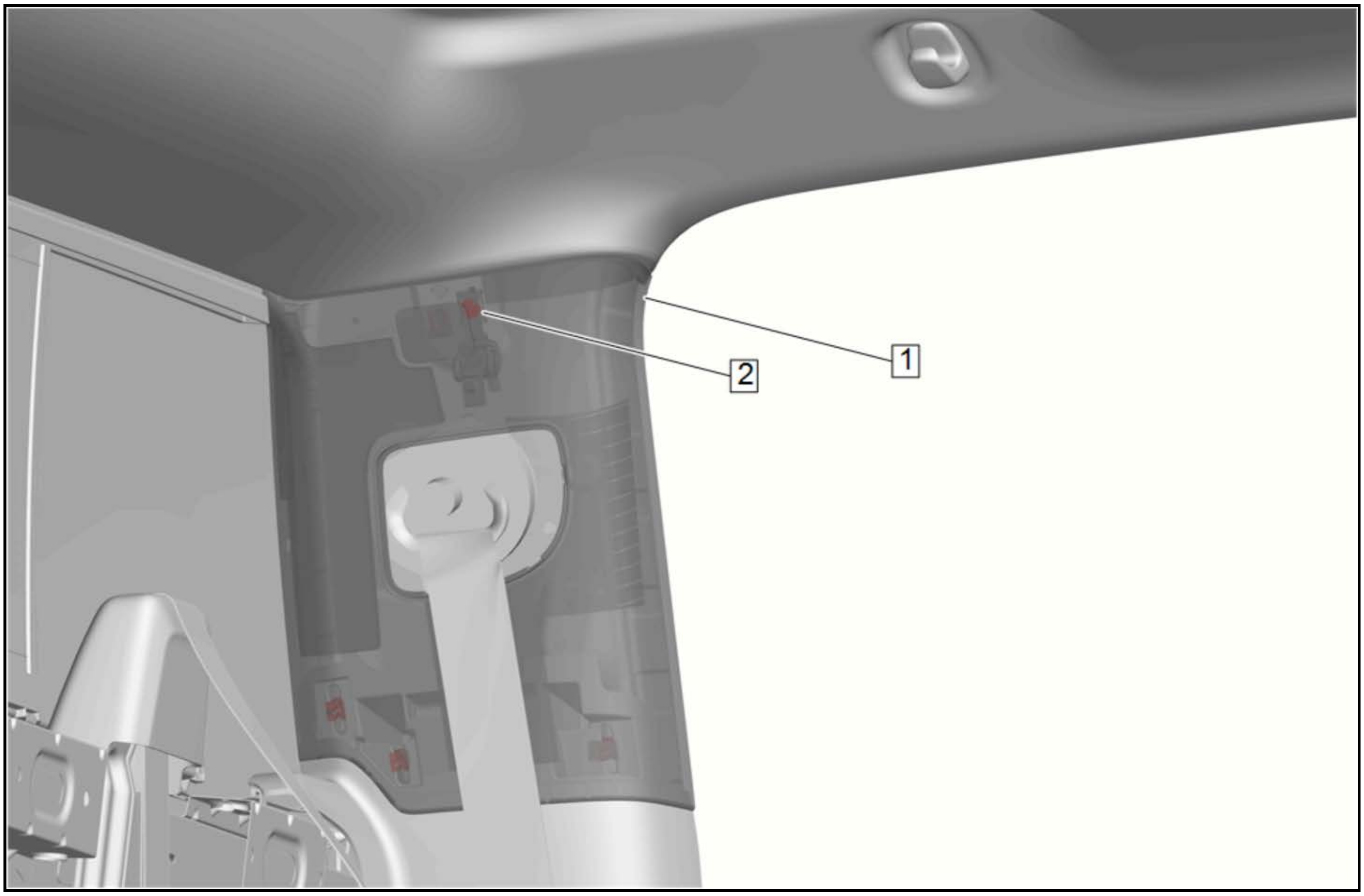


5044476

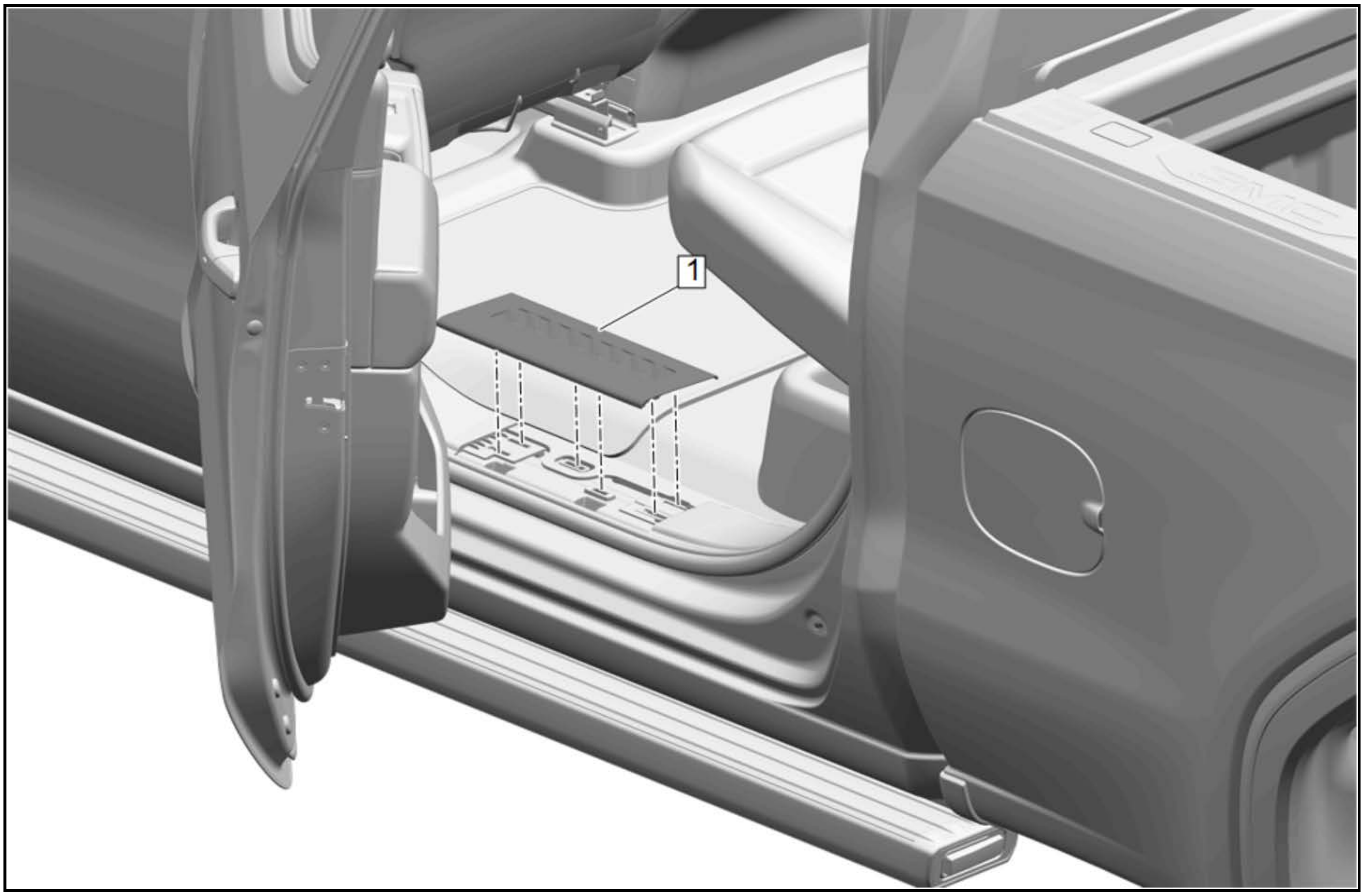
1. Rear Seat Belt Retractor (4) » Install
2. Feed the rear seat belt and anchor plate through the body side rear window garnish molding to install.
3. Rear Seat Belt Anchor Plate Bolt (3) » Install and tighten — *Fastener Specifications on page 8-341*
4. Return the rear floor panel carpeting to the original position.
5. Rear Seat Belt Retractor Bolt (2) » Install and tighten — *Fastener Specifications on page 8-341*
6. Rear Seat Belt Guide Bolt (1) » Install and tighten — *Fastener Specifications on page 8-341*



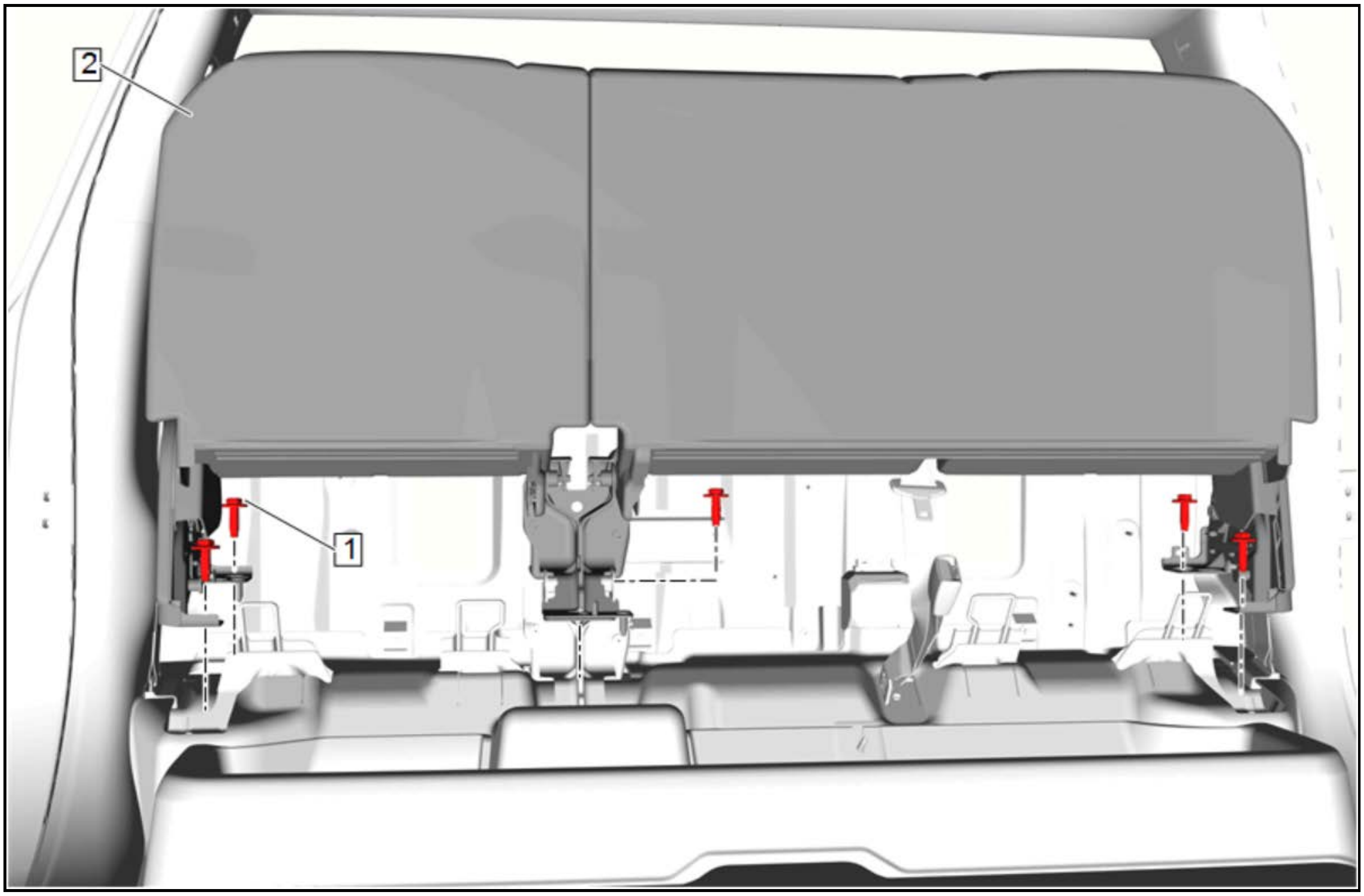
7. Ensure the seat belt webbing is not caught by panel clip tower and is in front of it.
8. Body Lock Pillar Garnish Molding (1) » Install



9. Quarter Window Trim Finish Panel Bolt (2) »
Install and tighten
10. Body Side Rear Window Garnish Molding (1) »
Install



11. Rear Side Door Sill Garnish Molding (1) » Install



12. Rear Seat Cushion (2) » Install
13. Enable the SIR System. [SIR Disabling and Enabling on page 8-481](#)

Description and Operation

Seat Belt System Description and Operation

Object-ID=5362544 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Restraint System

The primary means of occupant restraint are the front and rear seat belts. Seat belts help to keep the occupants inside the passenger compartment and gradually reduce the impact forces during the following events:

- Frontal impact
- Rear impact
- Side impact
- Rollover event

All seat belt retractors have emergency locks. The retractors remain unlocked during normal operation and under normal driving conditions to allow free movement of the upper body of each occupant. The seat belt webbing is locked into position by a pendulum, which causes a locking bar to engage a cog on the spool of the retractor mechanism, when the following conditions occur:

- Rapid extraction of the seat belt webbing from the retractor
- Abrupt change in vehicle velocity
- Operation of the vehicle on a steep slope

The seat belts have an automatic locking (cinch) feature. The cinch feature is activated when the seat belt webbing is completely extended from the retractor. It prevents the webbing from extending beyond the position at which it can retract. Use of the cinch feature is recommended for securing a child seat. The cinch feature may be cancelled by allowing the webbing to wind back completely into the retractor. After the cinch feature is cancelled, the webbing is unlocked. This vehicle is also equipped with a Supplemental Inflatable Restraint (SIR) system. Refer to [Supplemental Inflatable Restraint System Description and Operation on page 8-680](#).

Motorized Seat Belts

A motorized seat belt is a seat belt with a motor coupled to the shoulder belt retractor. The motor performs a reversible, pretightening action (retraction) to reduce the slack in the seat belt. The motorized seat belt provides the driver and passenger a sense of safety and, in the case of severe braking or a crash, more quickly couples the occupant to the vehicle, enhancing the safety to the occupant.

Motorized seat belts monitor vehicle information to determine when to perform each of the following retractions

- Full retraction for such situations but not limited to: panic braking and or skidding
- Dynamic support for lateral and longitudinal dynamics
- Slack removal when the vehicle speed above enable speed

Preconditions for motorized seat belt retractions

- Seat belt buckle is latched
- Vehicle speed greater than or equal to 25 kph (16 mph)
- All messages on serial data are received as valid

Triggers that may cause motorized seat belt retractions

- Emergency Braking
- Sudden Emergency / Panic Braking
- High Vehicle Deceleration Detection
- Ice Braking Detection
- Oversteer and Understeer

Motorized seat belt inputs

- Vehicle Power Mode
- Transmission Gear
- Wheel Speeds
- Vehicle Acceleration
- Accelerator Pedal Position
- Steering Wheel Angle and Gradient
- Yaw Rate and Lat/Long Acceleration
- Brake Pedal Position, Gradient, Pressure, Initial Travel
- Vehicle Stability

Motorized seat belt output signals

- Driver information center message – motorized seat belt Failed “Service Automatic Seatbelt Tightening”
- Driver information center message – motorized seat belt Unavailable “Automatic Seatbelt Tightening Unavailable”

Motorized seat belt retractions are inhibited when seat belt unbuckled

Driver and passenger motorized seat belts operate independently

Front Seat Belt System

The front seat belt system includes the driver and passenger seat belts, seat belt reminder indicators, and the retractor and anchor pretensioners, which are part of the SIR system, refer to Supplemental Inflatable Restraint System Description and Operation on page 8-680. The driver seat belt reminder indicator is controlled by a switch in the driver seat belt buckle. The passenger seat belt reminder indicator is controlled by a switch in the passenger seat belt buckle and the Restraint Occupant Classification System Module. For more on the Restraint Occupant Classification System Module, refer to Supplemental Inflatable Restraint System Description and Operation on page 8-680. When the vehicle is on, the seat belt reminder indicator and tone alarm will operate in the following cases:

- The driver seat belt is unbuckled
- The passenger seat belt is unbuckled while the seat is occupied

Rear Seat Belt System

The rear seat belt system includes the following components:

- The rear seat belt retractor located at the wheelhouse panel and attached to the floor panel
- The rear seat belt buckles and the center seat belt buckle attached to the seat

Child Seat Restraint System

Warning: SIO-ID=2051108 LMD=31-Jul-2018 ***A child in a rear-facing child restraint can be seriously injured if the front passenger air bag inflates, because the back of a rear-facing child restraint would be very close to the inflating air bag. NEVER use a rear-facing child restraint in this vehicle. If a forward-facing child restraint is suitable for your child, ALWAYS move the front passenger seat as far back as it will go and then install the child restraint. Be sure the child restraint position does not conflict with any additional requirements provided by the manufacturer. For more information, refer to the vehicle owner’s manual and the instructions that came with the child restraint.***

All vehicles are equipped with a dual-mode type retractor with emergency and automatic locking features. The automatic locking feature is for the restraint of a child seat. The child seat can be secured by pulling the seat belt all the way out to lock it, then tightening the seat belt around the child seat. If the child seat has a top strap, the child seat should be anchored. This applies to the seats designed with the top strap provision and for the vehicles sold in Canada. To ensure the correct top strap angle, the child seat is only to be used at the seating position for which the top strap anchor is installed. The child seat should be installed and secured according to the manufacturer's directions.

Seat Belt Reminder Indicators

There is a driver seat belt reminder indicator located on the instrument cluster and a passenger seat belt reminder located on the overhead console. The state of the seat belt reminder indicators is determined by the RCM, which communicates over serial data with the Restraint Occupant Classification System Module

(ROCSM) and the instrument cluster. The seat belt reminder indicator illuminates under the following conditions:

- The RCM sends the status of the driver seat belt to the instrument cluster via serial data. The passenger seat belt status is sent to the driver information center via serial data. The rear seat belt status is sent to the driver information center via serial data. If any of the seat belts are unfastened, the instrument cluster will send a message requesting a chime sound to be turned ON after a bulb check.

  Note: Review DIC for overhead console

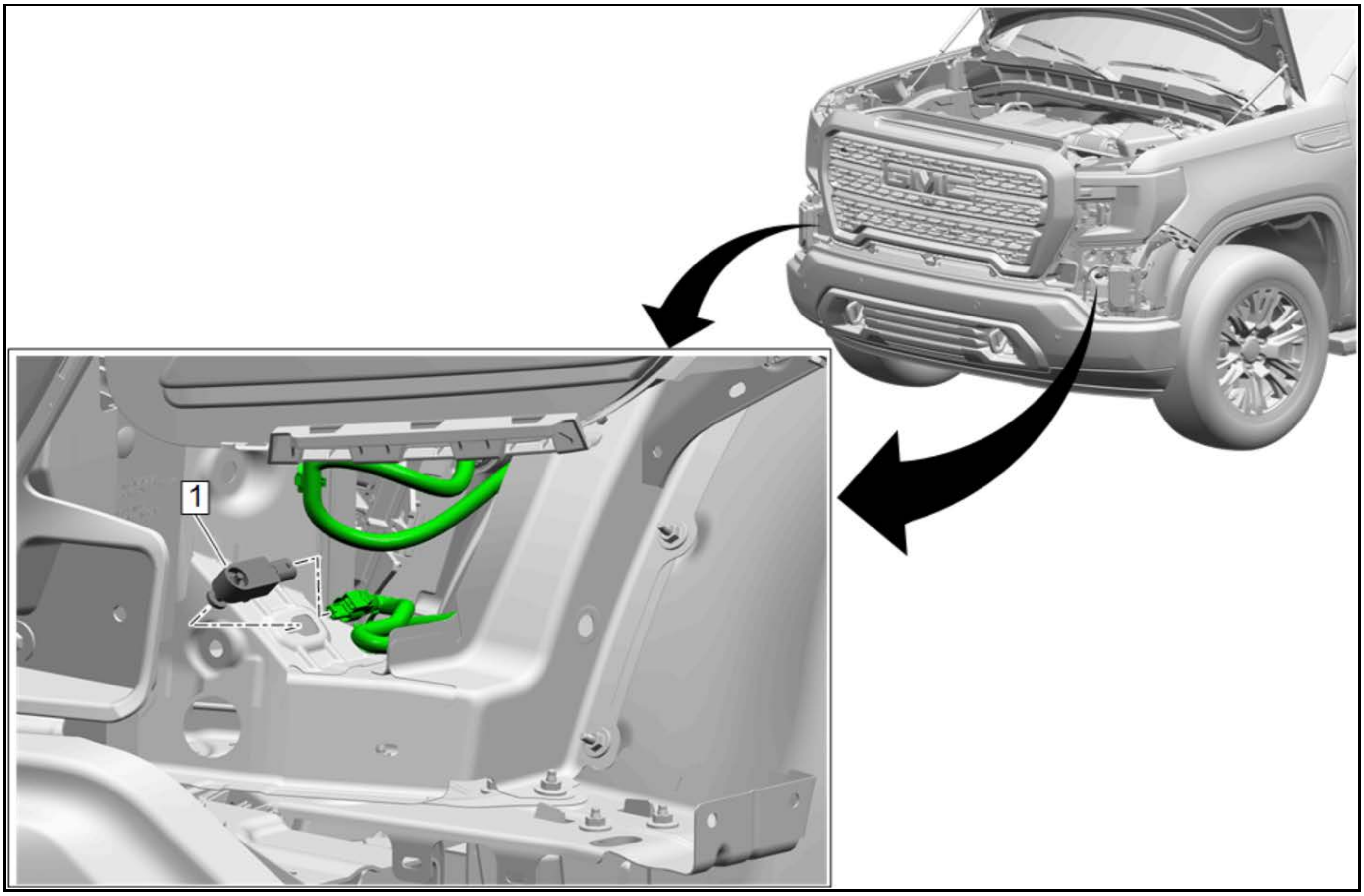
Safety and Security

Supplemental Restraints

Specifications

Fastener Specifications

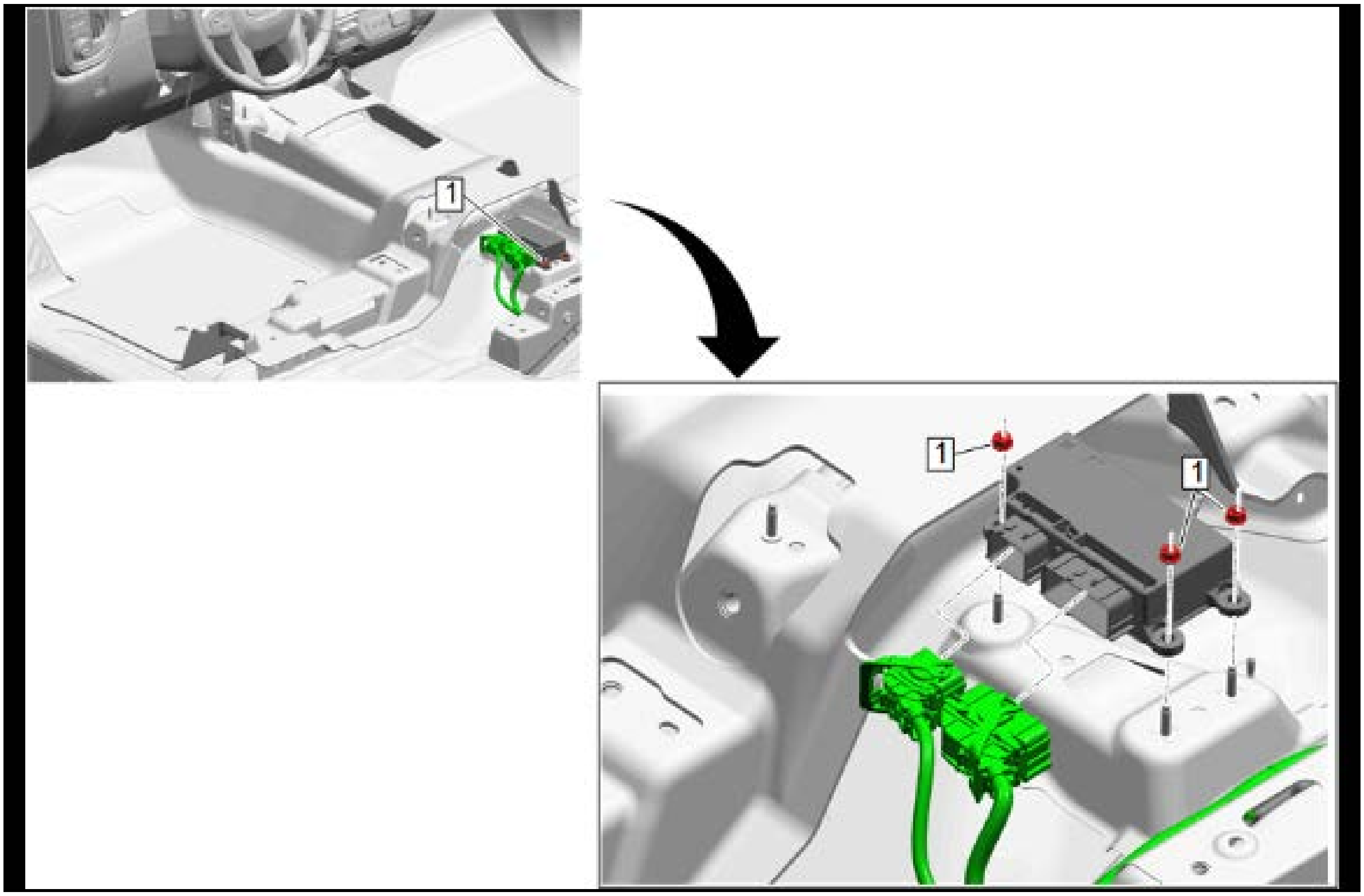
Object-ID=5652567 Owner=Schaller, Dawn LMD=02-Oct-2020 LMB=McMillan, Tim



5045220

Airbag Front End Discriminating Sensor

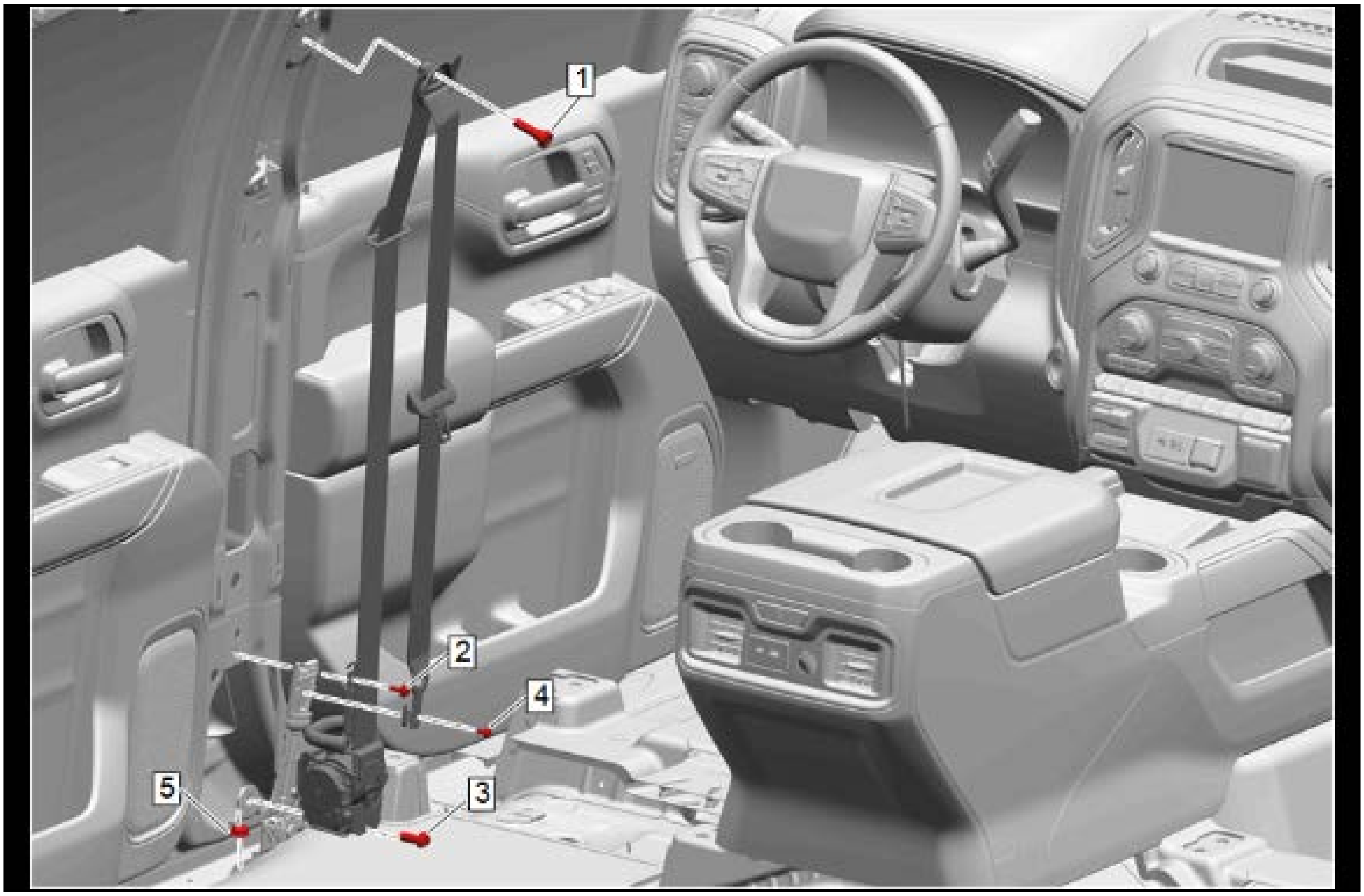
Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Airbag Front End Discriminating Sensor	—	—	7.5 N•m(66 lb in)	Airbag Front End Discriminating Sensor Replacement on page 8-483



5652103

Airbag Sensing and Diagnostic Module

Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Airbag Sensing and Diagnostic Module Nut [3x]	—	—	9 N•m(80 lb in)	*Restraints Control Module Replacement (Regular Cab) on page 8-497* or *Restraints Control Module Replacement on page 8-499* or *Restraints Control Module Replacement on page 8-503*



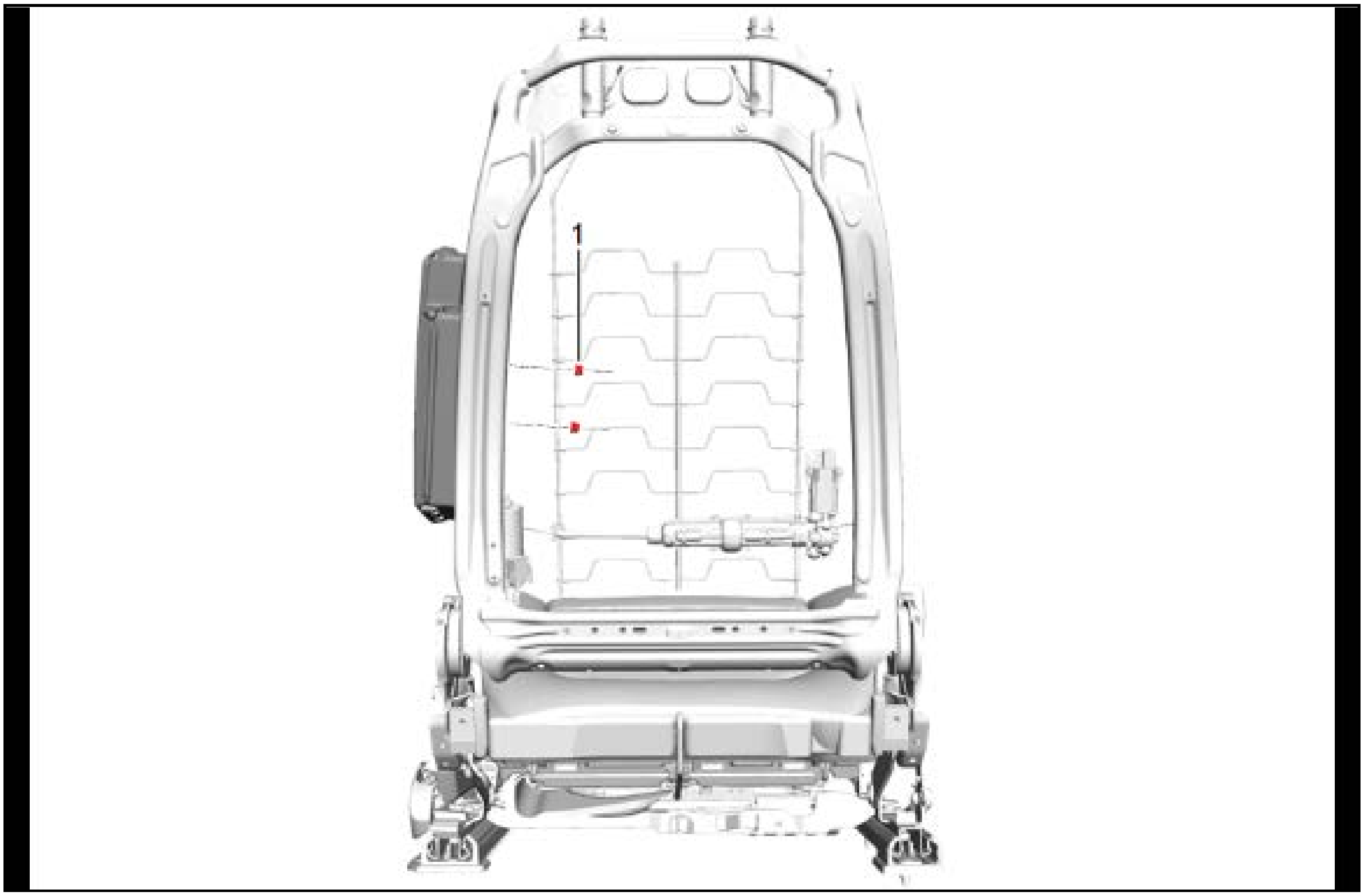
5652130

Front Seat Belt Retractor and Tensioner

Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification Metric (English)	Procedure
1	Front Seat Belt Retractor D Ring Bolt	—	Yes	45 N•m(33 lb ft)	Front Seat Belt Retractor Replacement (Regular Cab) on page 8-594 or Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) on page 8-610
2	Front Seat Belt Retractor Bolt - Upper	—	—	9 N•m(80 lb in)	Front Seat Belt Retractor Replacement (Regular Cab) on page 8-594 or Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) on page 8-610
3	Front Seat Belt Retractor Bolt - Lower	—	—	45 N•m(33 lb ft)	Front Seat Belt Retractor Replacement (Regular Cab) on page 8-594 or Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) on page 8-610
4	Front Seat Belt Anchor Plate Tensioner Bolt	—	Yes	9 N•m(80 lb in)	Front Seat Belt Anchor Plate Tensioner Replacement (Regular Cab) on page 8-626 or Front Seat Belt Anchor Plate Tensioner Replacement (Double Cab, Crew Cab) on page 8-640

Front Seat Belt Retractor and Tensioner (cont'd)

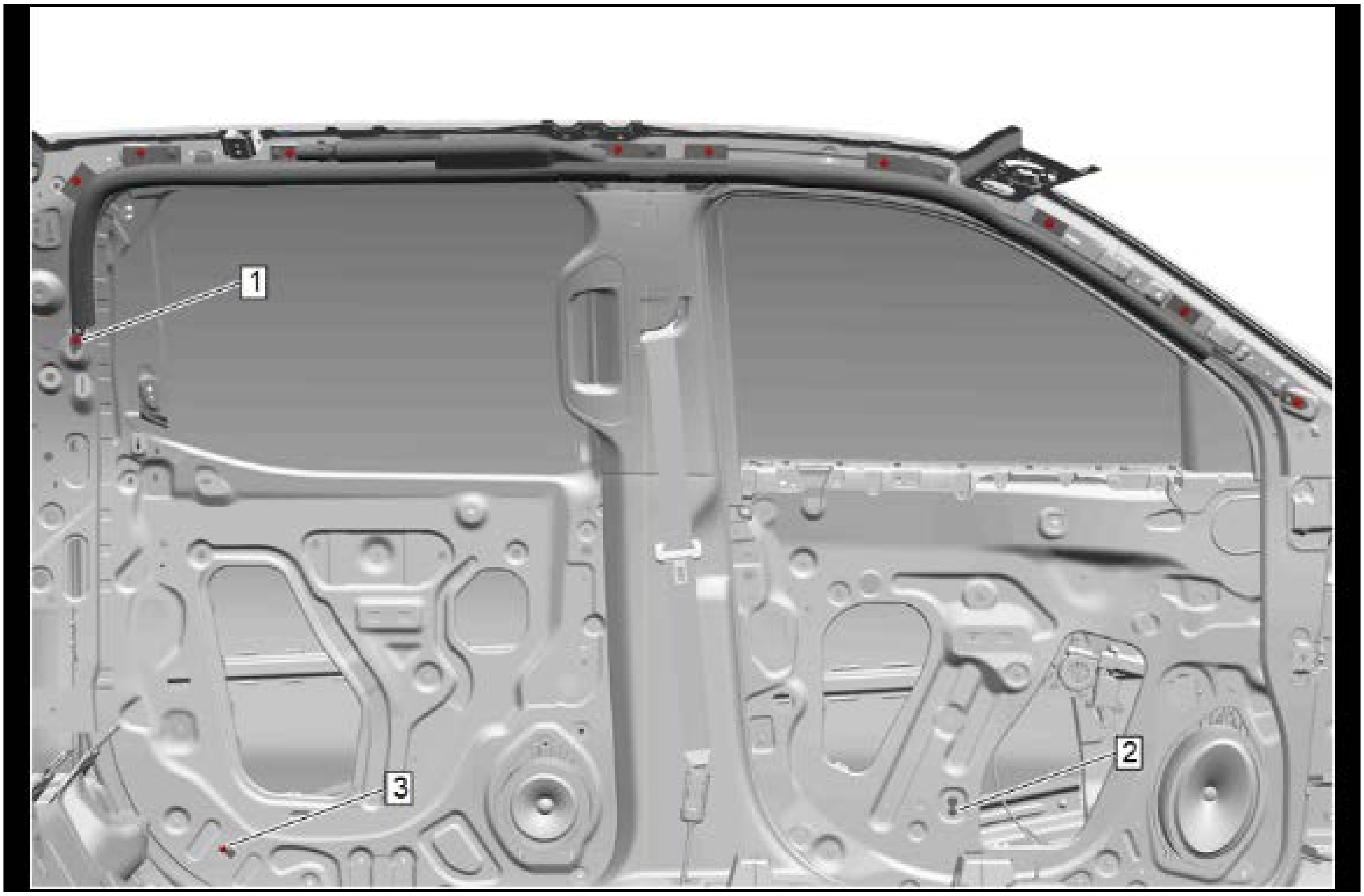
Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
5	Front Seat Belt Nut	—	—	45 N•m(33 lb ft)	Front Seat Belt Anchor Plate Tensioner Replacement (Regular Cab) on page 8-626 or Front Seat Belt Anchor Plate Tensioner Replacement (Double Cab, Crew Cab) on page 8-640



5642610

Front Seat Outboard Seat Back Airbag

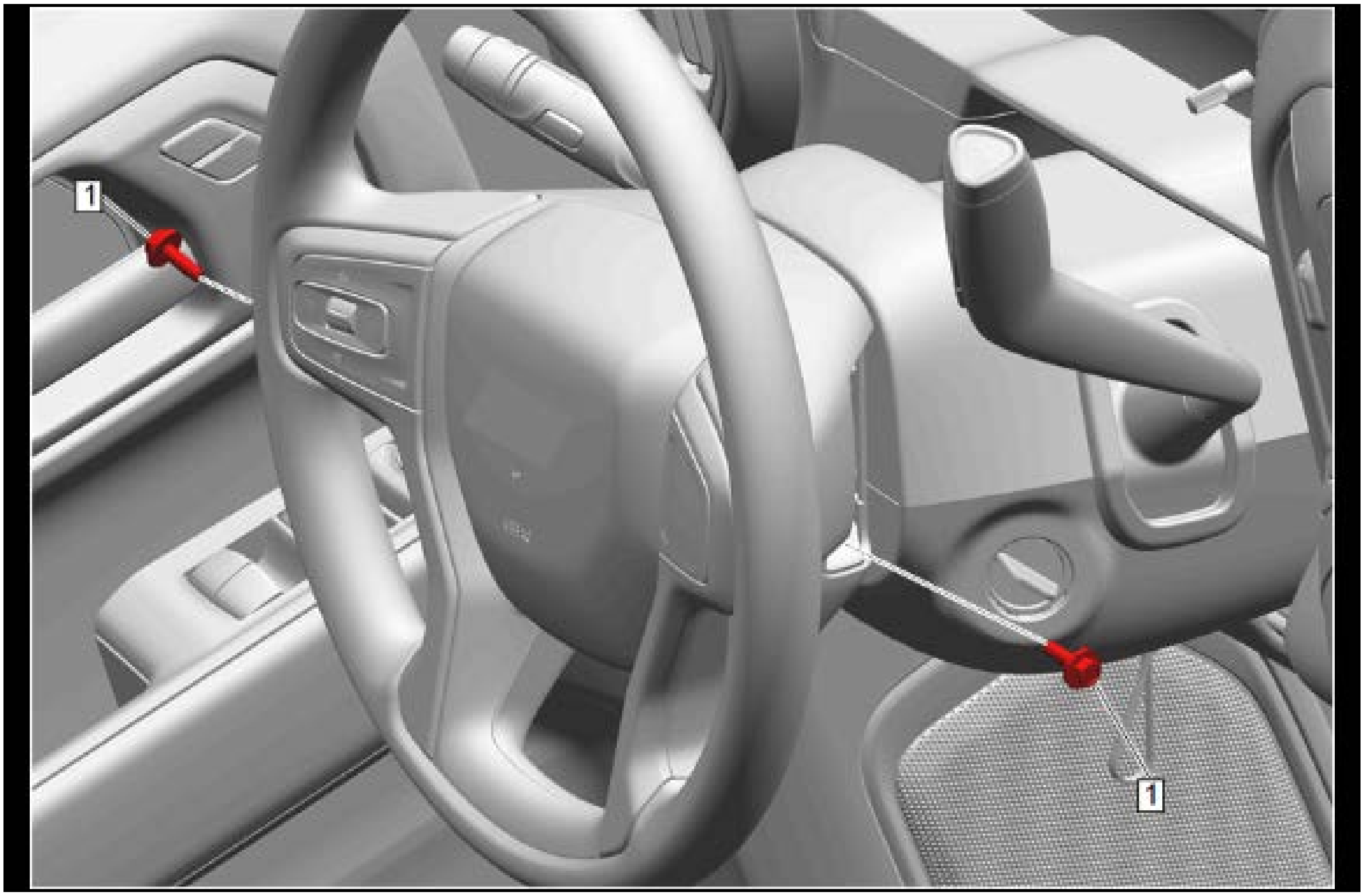
Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Front Seat Side Airbag Nut [2x]	—	—	3.75 N•m(33 lb in)	Front Seat Back Cover and Pad Removal and Installation



5652500

Roof Rail Airbag and Side Impact Sensors

Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Roof Rail Airbag Bolt [10x]	—	—	9 N•m(80 lb in)	Front and Rear Row Roof Rail Airbag Replacement on page 8-544
2	Airbag Side Impact Sensor	—	—	7.5 N•m(66 lb in)	Airbag Side Impact Sensor Replacement on page 8-487 or Airbag Side Impact Sensor Replacement on page 8-491
3	Airbag Side Impact Rear Sensor	—	—	7.5 N•m(66 lb in)	Airbag Side Impact Rear Sensor Replacement (Double Cab) on page 8-578 or Airbag Side Impact Rear Sensor Replacement (Crew Cab) on page 8-584 or Airbag Side Impact Rear Sensor Replacement on page 8-590



5652531

Steering Wheel Airbag

Callout	Component Name [Component Quantity]	Single Use Fastener/ Component	Thread Locking Adhesive Required	Specification	Procedure
				Metric (English)	
1	Steering Wheel Airbag Bolt [2x]	—	—	9 N•m(80 lb in)	*Steering Wheel Airbag Replacement on page 8-507*

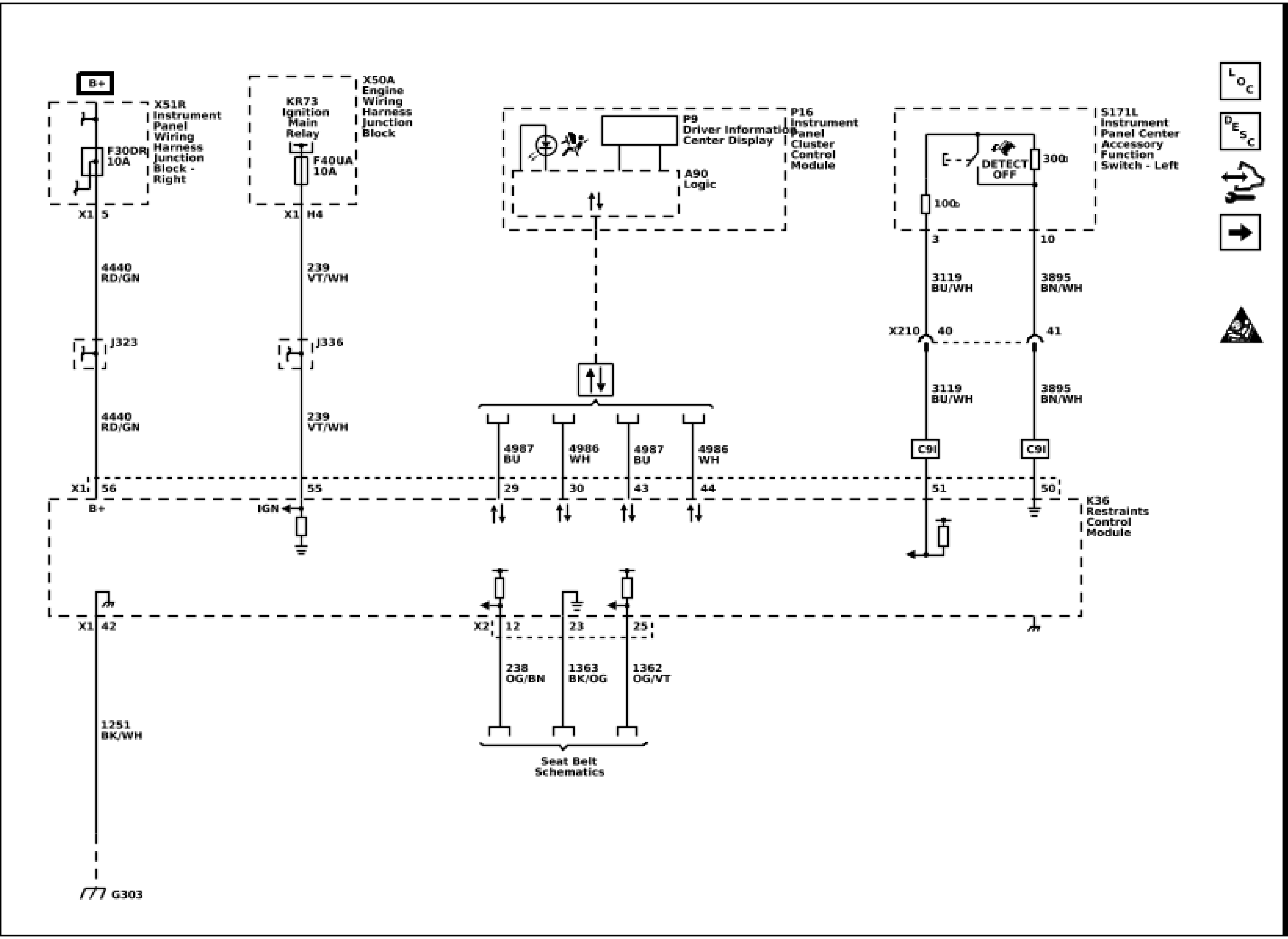
Object-ID=5646294 Owner=Schaller, Dawn LMD=02-Sep-2020 LMB=McMillan, Tim

Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
Front Seat Belt Retractor D Ring Bolt	Thread Locking Adhesive	19333511	10953489
Front Seat Belt Anchor Plate Tensioner Bolt	Thread Locking Adhesive	19333511	10953489

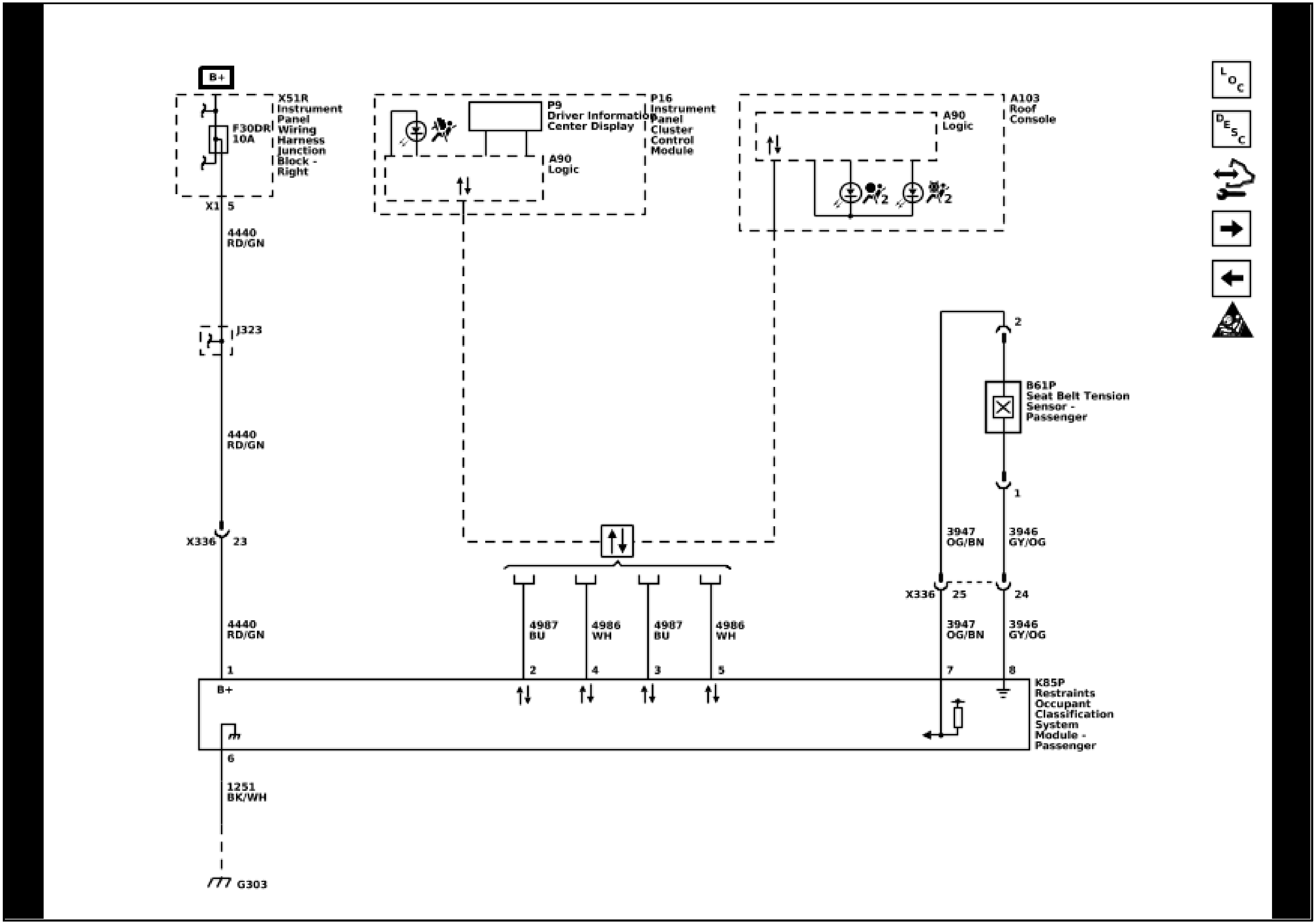
Schematic and Routing Diagrams

SIR Schematics Object-ID=6152414 (Module Power, Ground, Serial Data, Controls, Indicators, and Subsystem References)


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F30DR 10A
X1 5
4440 RD/GN
J323
4440 RD/GN
X1 56
B+
X50A Engine Wiring Harness Junction Block
KR73 Ignition Main Relay
F40UA 10A
X1 H4
239 VT/WH
J336
239 VT/WH
55
IGN
P9 Driver Information Center Display
A90 Logic
P16 Instrument Panel Cluster Control Module
4987 BU
4986 WH
4987 BU
4986 WH
29
30
43
44
S171L Instrument Panel Center Accessory Function Switch - Left
DETECT OFF
300Ω
100Ω
3
10
3119 BU/WH
3895 BN/WH
X210 40
41
3119 BU/WH
3895 BN/WH
C9I
C9I
51
50
K36 Restraints Control Module
X1 42
1251 BK/WH
G303
X2 12
23
25
238 OG/BN
1363 BK/OG
1362 OG/VT
Seat Belt Schematics
LOC
DESC

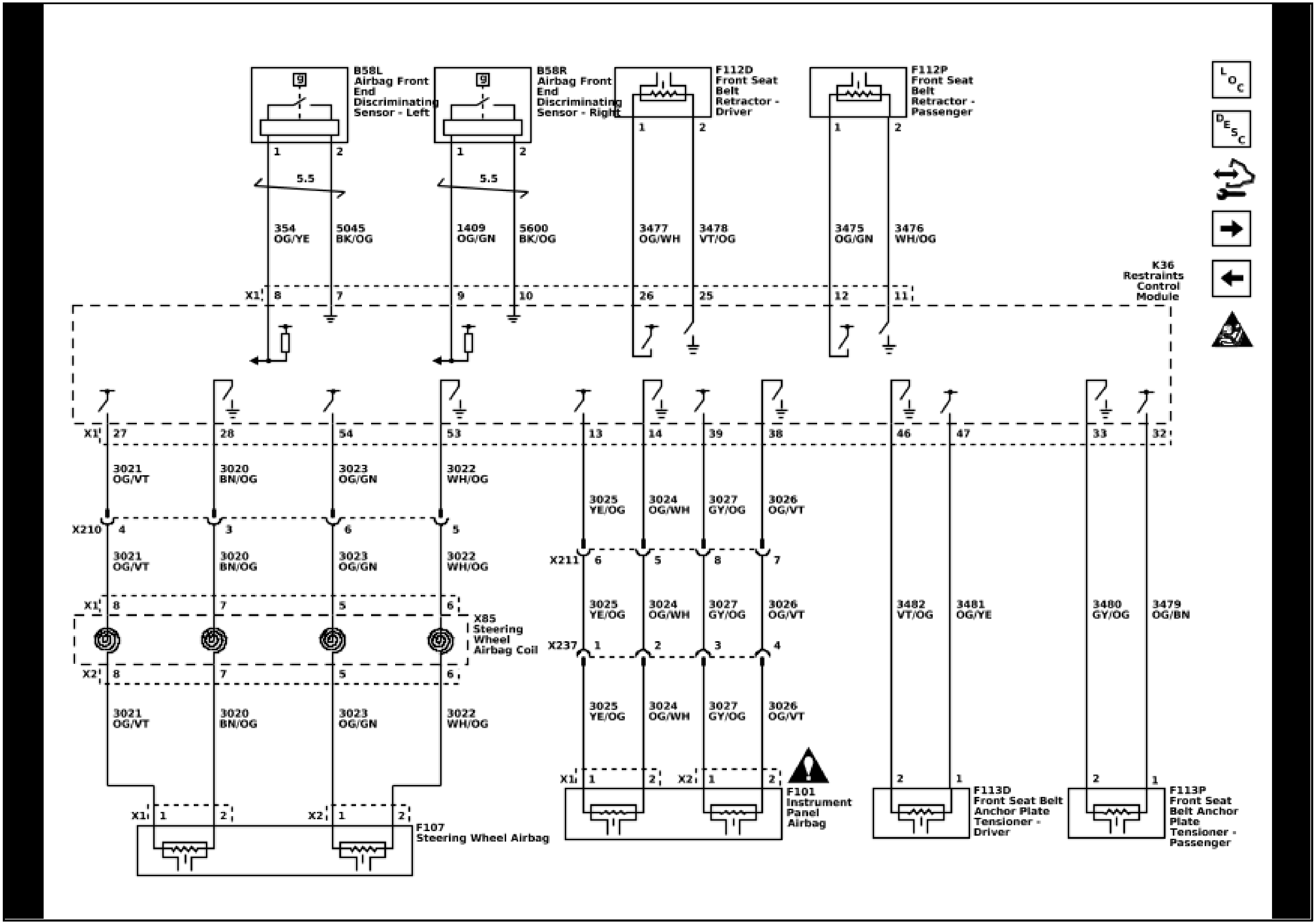
6150648

SIR Schematics Object-ID=6152414 (Passenger Presence Module)


B+
X51R Instrument Panel Wiring Harness Junction Block - Right
F30DR 10A
X1 5
4440 RD/GN
J323
4440 RD/GN
X336 23
4440 RD/GN
P9 Driver Information Center Display
P16 Instrument Panel Cluster Control Module
A90 Logic
A103 Roof Console
A90 Logic
2
2
2
B61P Seat Belt Tension Sensor - Passenger
1
3947 OG/BN
3946 GY/OG
X336 25
24
4987 BU
4986 WH
4987 BU
4986 WH
3947 OG/BN
3946 GY/OG
1
2
4
3
5
7
8
B+
6
K85P Restraints Occupant Classification System Module - Passenger
1251 BK/WH
G303

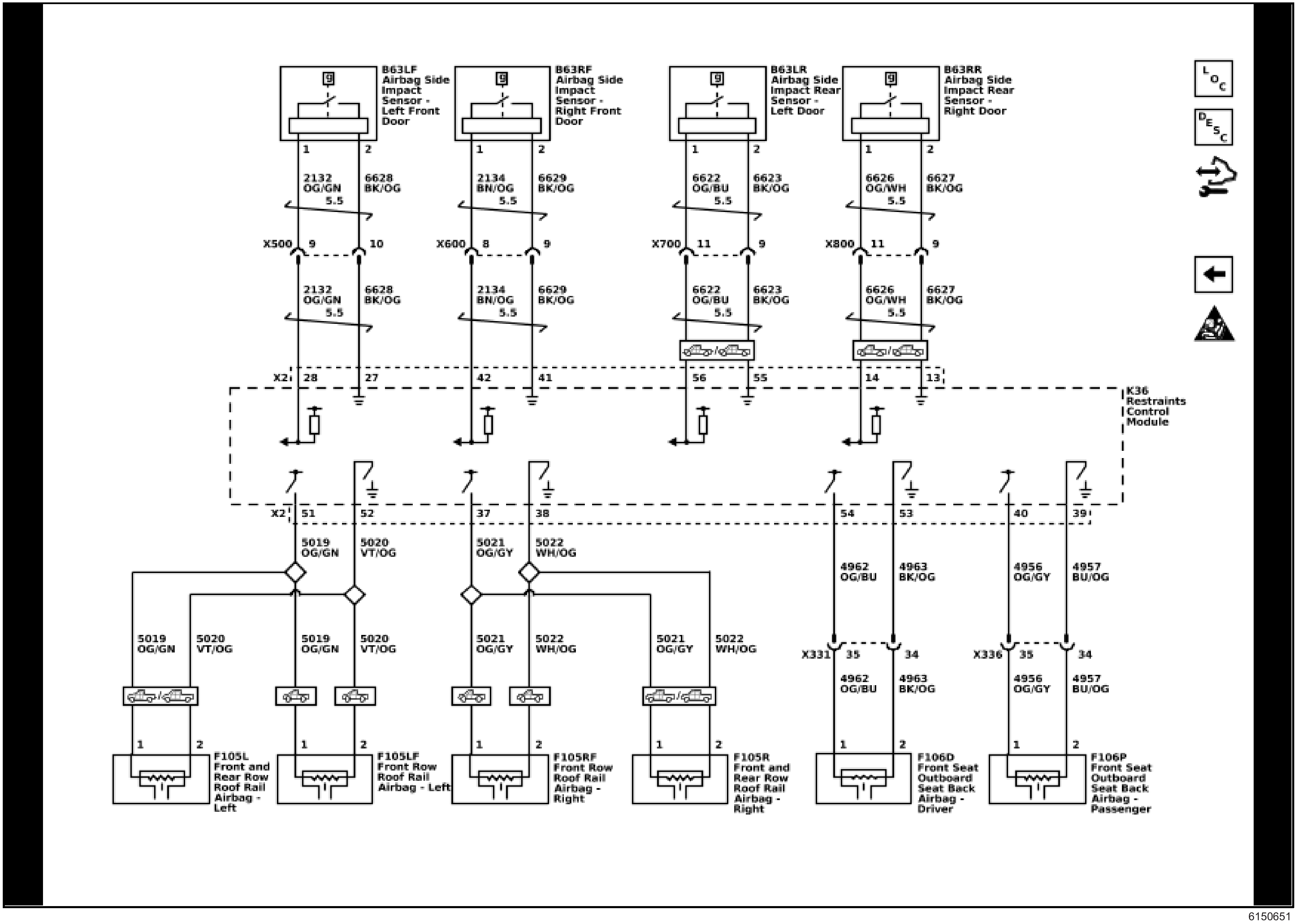
6150649

SIR Schematics Object-ID=6152414 (Frontal Impact Sensing and Deployment)


B58L
Airbag Front
End
Discriminating
Sensor - Left
B58R
Airbag Front
End
Discriminating
Sensor - Right
F112D
Front Seat
Belt
Retractor -
Driver
F112P
Front Seat
Belt
Retractor -
Passenger
5.5
354
OG/YE
5045
BK/OG
1409
OG/GN
5600
BK/OG
3477
OG/WH
3478
VT/OG
3475
OG/GN
3476
WH/OG
K36
Restraints
Control
Module
X1
8
7
9
10
26
25
12
11
27
28
54
53
13
14
39
38
46
47
33
32
3021
OG/VT
3020
BN/OG
3023
OG/GN
3022
WH/OG
3025
YE/OG
3024
OG/WH
3027
GY/OG
3026
OG/VT
X210
4
3
6
5
X211
X237
1
2
3
4
3482
VT/OG
3481
OG/YE
3480
GY/OG
3479
OG/BN
X85
Steering
Wheel
Airbag Coil
X2
F107
Steering Wheel Airbag
F101
Instrument
Panel
Airbag
F113D
Front Seat Belt
Anchor Plate
Tensioner -
Driver
F113P
Front Seat
Belt Anchor
Plate
Tensioner -
Passenger
LOC
DESC

6150650

SIR Schematics Object-ID=6152414 (Side Impact Sensing and Deployment)


B63LF Airbag Side Impact Sensor - Left Front Door
B63RF Airbag Side Impact Sensor - Right Front Door
B63LR Airbag Side Impact Rear Sensor - Left Door
B63RR Airbag Side Impact Rear Sensor - Right Door
1
2
2132 OG/GN 5.5
6628 BK/OG
2134 BN/OG 5.5
6629 BK/OG
6622 OG/BU 5.5
6623 BK/OG
6626 OG/WH 5.5
6627 BK/OG
X500 9 10
X600 8 9
X700 11 9
X800 11 9
X2 28 27 42 41 56 55 14 13
K36 Restraints Control Module
X2 51 52 37 38 54 53 40 39
5019 OG/GN
5020 VT/OG
5021 OG/GY
5022 WH/OG
4962 OG/BU
4963 BK/OG
4956 OG/GY
4957 BU/OG
X331 35 34
X336 35 34
F105L Front and Rear Row Roof Rail Airbag - Left
F105LF Front Row Roof Rail Airbag - Left
F105RF Front Row Roof Rail Airbag - Right
F105R Front and Rear Row Roof Rail Airbag - Right
F106D Front Seat Outboard Seat Back Airbag - Driver
F106P Front Seat Outboard Seat Back Airbag - Passenger
LOC
DESC
6150651

Diagnostic Information and Procedures

DTC B0001 or B0002

Object-ID=5201477 Owner=Bunker, Timothy LMD=08-Feb-2023 LMB=Bunker, Timothy

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B0001: Steering Wheel Module Stage 1 High Control

DTC B0002: Steering Wheel Module Stage 2 High Control

Diagnostic Fault Information

Cicuit	Circuit Function	Short to Ground	Low Resistance	High Resistance	Open Circuit	Short to Voltage	Signal Performance
3021	Control	B0001 11	B0001 1A	B0001 1B	B0001 13	B0001 12	—
3020	Control	B0001 11	B0001 1A	B0001 1B	B0001 13	B0001 12	—
3023	Control	B0002 11	B0002 1A	B0002 1B	B0001 13	B0002 12	—
3022	Control	B0002 11	B0002 1A	B0002 1B	B0001 13	B0002 12	—

Circuit/System Description

The F107 Steering Wheel Airbag is a dual-stage inflator located in the steering wheel. The F107 Steering Wheel Airbag contains a housing, inflatable Airbag, an initiating device, a canister of gas generating material and, in some cases, stored compressed gas. The F107 Steering Wheel Airbag uses two discrete deployment loops to supply current and deploy each state of the Airbag. Each deployment loop has a high control circuit that will supply voltage to deploy the Airbag and a low control circuit that will supply ground to deploy the Airbag. Stage 1 uses circuit 3021 as a high control and circuit 3020 as a low control. Stage 2 uses circuit 3023 as a high control and circuit 3022 as a low control.

Based on inputs from the impact sensors, the K36 Restraints Control Module will command deployment of Stage 1 or Stage 2 of the F107 Steering Wheel Airbag depending on crash specifics. To deploy the F107 Steering Wheel Airbag, the K36 Restraints Control Module will simultaneously apply voltage to the high control circuit and ground to the low control circuit.

The X85 Steering Wheel Airbag Coil contains a coil of ribbon cable that allows multiple full rotations of the steering wheel while maintaining continuity of the control circuits.

Conditions for Running the DTC

- Ignition ON
- Ignition voltage is between 9–16 V

Conditions for Setting the DTC

B0001 11

Circuit 3021 or circuit 3020 is shorted to ground for 2 s.

B0002 11

Circuit 3023 or circuit 3022 is shorted to ground for 2 s.

B0001 12

Circuit 3021 or circuit 3020 is shorted to voltage for 2 s.

B0002 12

Circuit 3023 or circuit 3022 is shorted to voltage for 2 s.

B0001 13

Circuit 3021 or circuit 3020 is open for 2 s.

B0002 13

Circuit 3023 or circuit 3022 is open for 2 s.

B0001 1A

Circuit 3021 or circuit 3020 resistance is less than 1.7 Ω for 2 s.

B0002 1A

Circuit 3023 or circuit 3022 resistance is less than 1.7 Ω for 2 s.

B0001 1B

Circuit 3021 or circuit 3020 resistance is greater than 4.4 Ω for 2 s.

B0002 1B

Circuit 3023 or circuit 3022 resistance is greater than 4.4 Ω for 2 s.

Action Taken When the DTC Sets

Airbag Indicator ON.

The inflatable restraint sensing and diagnostic module will store a DTC, however if an event occurs the system will still attempt deployment.

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 100 consecutive malfunction-free ignition cycles.

Diagnostic Aid

Note:

- Verify the proper Steering Wheel Airbag installation procedure is followed by referring to *Steering Wheel Airbag Replacement on page 8-507*
- The following diagnostic aids apply for both current and history DTCs.
- Always test the harness side when circuit testing deployment loops.
- Never test a component on a deployment loop with the DVOM.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

A worn steering wheel Airbag coil can cause a repeated history DTC to set. To verify this condition, refer to Circuit/System Testing.

An incorrectly seated connector can cause an open/high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Verify the appropriate scan tool Deployment Loop Resistance parameter stays consistently between 2.1 and 4.0 Ω without any spikes or dropouts while turning the steering wheel 360 degrees in one direction then back 360 degrees in the other direction.

⇒ **If less than 2.1 or greater than 4.0 Ω**

Refer to Circuit/System Testing.

⇓ **If within 2.1 and 4.0 Ω without any spikes or dropouts**

2. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - Steering Wheel Airbag
  - Steering wheel Airbag coil
  - Restraints Control Module
  - Airbag wiring harness connector
  - Restraints Control Module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF.
2. Verify SIR system is disabled.
3. Disconnect the appropriate connector at the F107 Steering Wheel Airbag:
   - DTC B0001 = X1
   - DTC B0002 = X2
4. Test for greater than 25 Ω between control circuit terminal 1 and control circuit terminal 2.

⇒ **If 25 Ω or less**

4.1. Verify the appropriate circuits are not shorted together:
   - DTC B0001 = Circuit 3021 and circuit 3020
   - DTC B0002 = Circuit 3023 and circuit 3022

⇒ If a short between the circuit is found, repair the fault on the circuit.

⇓ If a short between the circuits is not found

4.2. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

5. Ignition ON.
6. Verify SIR system is disabled.
7. Test for less than 11 V between the control circuit terminals listed below and ground:
   - Control circuit terminal 1
   - Control circuit terminal 2

⇒ **If 11 V or greater**

7.1. Test the following circuits for a short to voltage:

- DTC B0001 = Circuit 3021 and circuit 3020
- DTC B0002 = Circuit 3023 and circuit 3022

⇒ If a short to voltage is found, repair the fault on the circuit.

⇓ If a short to voltage is not found

7.2. Replace the K36 Restraints Control Module.

⇓ **If less than 11 V**

8. Ignition OFF.
9. Verify SIR system is disabled.
10. Test for greater than 25 Ω between the control circuit terminals listed below and ground:
    - Control circuit terminal 1
    - Control circuit terminal 2

⇒ **If 25 Ω or less**

10.1. Test the following circuits for a short to ground:

- DTC B0001 = Circuit 3021 and circuit 3020
- DTC B0002 = Circuit 3023 and circuit 3022

⇒ If a short to ground is found, repair the fault on the circuit.

⇓ If a short to ground is not found

10.2. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

11. Ignition OFF.
12. Verify SIR system is disabled.
13. Install a 3 A fused jumper wire between control circuit terminal 1 and control circuit terminal 2, ignition ON.
14. Verify the appropriate scan tool Deployment Loop Resistance parameter is consistently less than 2 Ω while turning the steering wheel 360 degrees in one direction then back 360 degrees in the other direction.

⇒ **If the reading is erratic while turning the steering wheel**

Replace the X85 Steering Wheel Airbag Coil.

⇒ **If 2 Ω or greater**

14.1. Ignition OFF.

14.2. Verify SIR system is disabled.

14.3. Test the following circuits for an open/high resistance:

- DTC B0001 = Circuit 3021 and circuit 3020
- DTC B0002 = Circuit 3023 and circuit 3022

⇒ If an open/high resistance is found, repair the fault on the circuit.

⇓ If an open/high resistance is not found

14.4. Replace the K36 Restraints Control Module.

⇓ **If less than 2 Ω**

15. Ignition OFF, connect the harness connector at the F107 Steering Wheel Airbag and press in the CPA (if equipped) until an audible and/or tactile click is heard.
16. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
17. Verify DTC B0001 or B0002 is not set.

⇒ **If DTC B0001 or B0002 is set**

Replace the F107 Steering Wheel Airbag.

⇓ **If DTC B0001 or B0002 is not set**

18. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Steering Wheel Airbag Replacement on page 8-507*
- *Steering Wheel Airbag Coil Replacement on page 8-513*
- Control Module References for Restraints Control Module replacement, programming, and setup

DTC B0010 or B0011

Object-ID=5201484 Owner=Bunker, Timothy LMD=08-Feb-2023 LMB=Bunker, Timothy

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B0010: Passenger IP Module Stage 1 High Control

DTC B0011: Passenger IP Module Stage 2 High Control

Diagnostic Fault Information

Circuit Number	Circuit Function	Short to Ground	Low Resistance	High Resistance	Open Circuit	Short to Voltage	Signal Performance
3025	Control	B0010 11	B0010 1A	B0010 1B	B0010 13	B0010 12	—
3024	Control	B0010 11	B0010 1A	B0010 1B	B0010 13	B0010 12	—
3027	Control	B0011 11	B0011 1A	B0011 1B	B0011 13	B0011 12	—
3026	Control	B0011 11	B0011 1A	B0011 1B	B0011 13	B0011 12	—

Circuit/System Description

The F101 Instrument Panel Airbag is a dual-stage inflator located in the Instrument Panel. The F101 Instrument Panel Airbag contains a housing, inflatable airbag, an initiating device, a canister of gas generating material and, in some cases, stored compressed gas. The F101 Instrument Panel Airbag uses two discrete deployment loops to supply current and deploy each state of the airbag. Each deployment loop has a high control circuit that will supply voltage to deploy the airbag and a low control circuit that will supply ground to deploy the airbag. Stage 1 uses circuit 3025 as a high control and circuit 3024 as a low control. Stage 2 uses circuit 3027 as a high control and circuit 3026 as a low control.

Based on inputs from the impact sensors, the K36 Restraints Control Module will command deployment of Stage 1 or Stage 2 of the F101 Instrument Panel Airbag depending on crash specifics. To deploy the F101 Instrument Panel Airbag, the K36 Restraints Control Module will simultaneously apply voltage to the high control circuit and ground to the low control circuit.

Conditions for Running the DTC

- Ignition On
- Ignition voltage is between 9–16 V

Conditions for Setting the DTC

B0010 11

Circuit 3025 or circuit 3024 is shorted to ground for 2 s.

B0011 11

Circuit 3027 or circuit 3026 is shorted to ground for 2 s.

B0010 12

Circuit 3025 or circuit 3024 is shorted to voltage for 2 s.

B0011 12

Circuit 3027 or circuit 3026 is shorted to voltage for 2 s.

B0010 13

Circuit 3025 or circuit 3024 is open for 2 s.

B0011 13

Circuit 3027 or circuit 3026 is open for 2 s.

B0010 1A

Circuit 3025 or circuit 3024 resistance is less than 1.7 Ω for 2 s.

B0011 1A

Circuit 3027 or circuit 3026 resistance is less than 1.7 Ω for 2 s.

B0010 1B

Circuit 3025 or circuit 3024 resistance is greater than 4.4 Ω for 2 s.

B0011 1B

Circuit 3027 or circuit 3026 resistance is greater than 4.4 Ω for 2 s.

Action Taken When the DTC Sets

Airbag Indicator ON.

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 100 consecutive malfunction-free ignition cycles.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Verify the appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 and 4.0 Ω for the F101 Instrument Panel Airbag.

⇒ **If less than 2.1 or greater than 4.0 Ω**

Refer to Circuit/System Testing.

⇓ **If within 2.1 and 4.0 Ω without any spikes or dropouts**

2. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Always test the harness side when circuit testing deployment loops.
- Never test a component on a deployment loop with the DVOM.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - Instrument Panel Airbag
  - Restraints Control Module
  - Airbag wiring harness connector
  - Restraints Control Module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF.
2. Verify the SIR system is disabled.
3. Disconnect the appropriate connector at the F101 Instrument Panel Airbag:
   - DTC B0010 = X1
   - DTC B0011 = X2
4. Test for greater than 25 Ω between control circuit terminal 1 and control circuit terminal 2.

⇒ **If 25 Ω or less**

4.1. Verify the appropriate circuits are not shorted together:
- DTC B0010 = Circuit 3025 and circuit 3024
- DTC B0011 = Circuit 3027 and circuit 3026

⇒ If a short between the circuit is found, repair the fault on the circuit.

⇓ If a short between the circuits is not found

4.2. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

5. Ignition ON.
6. Verify the SIR system is disabled.
7. Test for less than 11 V between the control circuit terminals listed below and ground:
   - Control circuit terminal 1
   - Control circuit terminal 2

⇒ **If 11 V or greater**

7.1. Test the following circuits for a short to voltage:
- DTC B0010 = Circuit 3025 and circuit 3024
- DTC B0011 = Circuit 3027 and circuit 3026

⇒ If a short to voltage is found, repair the fault on the circuit.

⇓ If a short to voltage is not found

7.2. Replace the K36 Restraints Control Module.

⇓ **If less than 11 V**

8. Ignition OFF.
9. Verify the SIR system is disabled.
10. Test for greater than 25 Ω between the control circuit terminals listed below and ground:
    - Control circuit terminal 1
    - Control circuit terminal 2

⇒ **If 25 Ω or less**

10.1. Test the following circuits for a short to ground:
  - DTC B0010 = Circuit 3025 and circuit 3024
  - DTC B0011 = Circuit 3027 and circuit 3026

⇒ If a short to ground is found, repair the fault on the circuit.

⇓ If a short to ground is not found

10.2. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

11. Install a 3 A fused jumper wire between control circuit terminal 1 and control circuit terminal 2.
12. Verify the SIR system is enabled.
13. Ignition ON.
14. Verify the scan tool Deployment Loop Resistance parameter is less than 2 Ω.

⇒ **If 2 Ω or greater,**

14.1. Verify the SIR system is disabled.

14.2. Test the following circuits for an open/high resistance:
  - DTC B0010 = Circuit 3025 and circuit 3024
  - DTC B0011 = Circuit 3027 and circuit 3026

⇒ If an open/high resistance is found, repair the fault on the circuit.

⇓ If an open/high resistance is not found

14.3. Replace the K36 Restraints Control Module.

⇓ **If less than 2 Ω**

15. Ignition OFF.
16. Verify the SIR system is disabled.
17. Connect the harness connector at the F101 Instrument Panel Airbag and press in the CPA (if equipped) until an audible and/or tactile click is heard.
18. Verify the SIR system is enabled.
19. Ignition ON.
20. Clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
21. Verify DTC B0010 or B0011 is not set.

⇒ **If DTC B0010 or B0011 is set**

Replace the F101 Instrument Panel Airbag.

⇓ **If DTC B0010 or B0011 is not set**

22. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Instrument Panel Airbag Replacement on page 8-535*
- Control Module References for Restraints Control Module control module replacement, programming and setup

DTC B0021 or B0029

Object-ID=5905052 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B0021: Left Front Head Curtain Module High Control

DTC B0029: Right Front Head Curtain Module High Control

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Low Resistance	Short to Voltage	Signal Performance
Control — Terminal 1, 2 @ F105LF Roof Rail Air Bag - Left Front	B0021 11	B0021 1B, B0021 13	B0021 1A	B0021 12	—
Control — Terminal 1, 2 @ F105RF Roof Rail Air Bag - Right Front	B0029 11	B0029 1B, B0029 13	B0029 1A	B0029 12	—

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Circuit	Description
Control — Terminal 1	The output circuit is switched to 12 V to activate the component.
Control — Terminal 2	The output circuit is switched to ground to activate the component.

Component	Description
F105 Roof Rail Air Bag	The pyrotechnic unit contains an ignitor, which, when supplied with voltage, ignites the propellant in the gas generator.
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

B0021 12, B0029 12

The air bag control circuit is shorted to voltage for 2 seconds.

B0021 11, B0029 11

The air bag control circuit is shorted to ground for 2 seconds.

B0021 13, B0029 13

The air bag control circuit is open for 2 seconds.

B0021 1B, B0029 1B

The air bag deployment loop resistance is greater than 4.2 Ω for 2 seconds.

B0021 1A, B0029 1A

The air bag deployment loop resistance is less than 1.4 Ω for 2 seconds.

Action Taken When the DTC Sets

- Air Bag Malfunction Indicator = On.

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 100 consecutive malfunction-free ignition cycles.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike. Refer to Testing for Intermittent Conditions and Poor Connections

1. Verify the appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 and 4.0 Ω:
   - F105L Roof Rail Air Bag – Left
   - F105R Roof Rail Air Bag – Right

⇒ **If less than 2.1 or greater than 4.0 Ω**

Refer to Circuit/System Testing.

⇓ **If within 2.1 and 4.0 Ω**

2. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  – Roof rail air bag
  – Roof rail air bag wiring harness connector
  – Restraints Control module
  – Restraints Control module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF. Scan tool disconnected. It may take up to 2 min for all vehicle systems to power down.
2. Verify the SIR system is disabled.
3. Disconnect the harness connector at the appropriate F105 Roof Rail Air Bag.
4. Test for greater than 13 Ω between the control circuit terminals 1 and 2.

⇒ **If 13 Ω or less**

4.1. Disconnect the X2 harness connector at the K36 Restraints Control module.

4.2. Test for infinite resistance between the two control circuits.

⇒ If less than infinite resistance, repair the short between the two circuits.

⇒ If infinite resistance, replace the K36 Restraints Control module.

⇓ **If greater than 13 Ω**

5. Ignition ON.
6. Verify the SIR system is disabled.
7. Test for less than 11 V between the control circuit terminals listed below and ground:
   - Control circuit terminal 1
   - Control circuit terminal 2

⇒ **If 11 V or greater**

7.1. Ignition OFF.

7.2. Verify the SIR system is disabled.

7.3. Disconnect the X2 harness connector at the K36 Restraints Control module. Ignition ON.

7.4. Test for less than 1 V between the control circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K36 Restraints Control module.

⇓ **If less than 11 V**

8. Ignition OFF.
9. Verify the SIR system is disabled.
10. Test for greater than 13 Ω between the control circuit terminals listed below and ground:
    - Control circuit terminal 1
    - Control circuit terminal 2

⇒ **If 13 Ω or less**

10.1. Disconnect the X2 harness connector at the K36 Restraints Control module.

10.2. Test for infinite resistance between the control circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K36 Restraints Control module.

⇓ **If greater than 13 Ω**

11. Install a 3 A fused jumper wire between the control circuit terminals 1 and 2. Ignition ON.
12. Verify the scan tool Deployment Loop Resistance parameter is less than 2 Ω.

⇒ **If 2 Ω or greater**

12.1. Ignition OFF.

12.2. Verify the SIR system is disabled.

12.3. Disconnect the X2 harness connector at the K36 Restraints Control module.

12.4. Test for less than 2 Ω in each control circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Restraints Control module.

⇓ **If less than 2 Ω**

13. Ignition OFF, connect the harness connector at the F105 Head Curtain Control Module, press in the CPA (if equipped) until an audible and/or tactile click is heard.
14. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
15. Verify DTC B0021 or B0029 is not set.

⇒ **If DTC B0021 or B0029 is set**

Test or replace the F105 Head Curtain Control Module.

⇓ **If DTC B0021 or B0029 is not set**

16. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Front and Rear Row Roof Rail Airbag Replacement on page 8-544*
- Control Module References for Restraints Control module replacement, programming and setup

DTC B0070 or B0072

Object-ID=5201487 Owner=Bunker, Timothy LMD=08-Feb-2023 LMB=Bunker, Timothy

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B0070: Driver Seat Belt Anchor Plate Tensioner

DTC B0072: Co-Driver Seat Belt Anchor Plate Tensioner

For symptom byte information refer to Symptom Byte List .

Diagnostic Fault Information

Circuit	Circuit Function	Short to Ground	Low Resistance	High Resistance	Open Circuit	Short to Voltage	Signal Performance
3481	Control	B0070 11	B0070 1A	B0070 1B	B0070 13	B0070 12	—
3482	Control	B0070 11	B0070 1A	B0070 1B	B0070 13	B0070 12	—
3479	Control	B0072 11	B0072 1A	B0072 1B	B0072 13	B0072 12	—
3480	Control	B0072 11	B0072 1A	B0072 1B	B0072 13	B0072 12	—

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

The F113D Seat Belt Anchor Plate Tensioner — Driver and F113P Seat Belt Anchor Plate Tensioner — Passenger are pyrotechnic units that contain an ignitor, which, when supplied with voltage, ignites the propellant in the gas generator. The F113 Seat Belt Anchor Plate Tensioners are respectively located on the driver and passenger center pillars. The deployment loop has a high control circuit that will supply voltage to deploy the pretensioner and a low control that will supply ground to deploy the pretensioner. The F113D Seat Belt Anchor Plate Tensioner — Driver uses circuit 3481 as high control and circuit 3482 as low control. The F113P Seat Belt Anchor Plate Tensioner — Passenger uses circuit 3479 as high control and circuit 3480 as low control. Based on inputs from the impact sensors, the K36 Restraints Control Module will command deployment of the F113 Seat Belt Anchor Plate Tensioners by simultaneously applying voltage to the high control circuit, and ground to the low control circuit

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Ignition ON

Conditions for Setting the DTC

B0070 11

Circuit 3481 or circuit 3482 is shorted to ground for 2 s

B0072 11

Circuit 3479 or circuit 3480 is shorted to ground for 2 s

B0070 12

Circuit 3481 or circuit 3482 is shorted to voltage for 2 s

B0072 12

Circuit 3479 or circuit 3480 is shorted to voltage for 2 s

B0070 13

Circuit 3481 or circuit 3482 is open for 2 s

B0072 13

Circuit 3479 or circuit 3480 is open for 2 s

B0070 1B

Circuit 3481 or circuit 3482 resistance is greater than 4.2 Ω for 2 s

B0072 1B

Circuit 3479 or circuit 3480 resistance is greater than 4.2 Ω for 2 s

B0070 1A

Circuit 3481 or circuit 3482 resistance is less than 1.4 Ω for 2 s

B0072 1A

Circuit 3479 or circuit 3480 resistance is less than 1.4 Ω for 2 s

Action Taken When the DTC Sets

- Airbag Indicator ON.
- The inflatable restraint sensing and diagnostic module will store a DTC, however if an event occurs the system will still attempt deployment.

Conditions for Clearing the DTC

- The current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 100 consecutive malfunction-free ignition cycles..

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Verify the appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 and 4.0 Ω for the F113 Seat Belt Anchor Plate Tensioner.

⇒ **If less than 2.1 Ω or greater than 4.0 Ω**

Refer to Circuit/System Testing.

⇓ **If between 2.1–4.0 Ω without any spikes or dropouts**

2. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Always test the harness side when circuit testing deployment loops.
- Never test a component on a deployment loop with the DVOM.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - – Seat Belt Anchor Plate Tensioner
  - – Restraints Control Module
  - – Seat Belt Anchor Plate Tensioner wiring harness connector
  - – Restraints Control module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF.
2. Verify the SIR system is disabled.
3. Disconnect the harness connector at the appropriate F113 Seat Belt Anchor Plate Tensioner.
4. Test for greater than 25 Ω between the control circuit terminals 1 and circuit terminal 2.

⇒ **If 25 Ω or less**

4.1. Disconnect the X2 harness connector at the K36 Restraints Control Module.

4.2. Verify the appropriate circuits are not shorted together:
   - DTC B0070 = Circuit 3481 and circuit 3482
   - DTC B0072 = Circuit 3479 and circuit 3480

⇒ If a short between the circuit is found, repair the fault on the circuit.

⇓ If a short between the circuits is not found

4.3. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

5. Ignition ON.
6. Verify the SIR system is disabled.
7. Test for less than 11 V between each control circuit terminal listed below and ground:
   - Control circuit terminal 1
   - Control circuit terminal 2

⇒ **If 11 V or greater**

7.1. Test the following circuits for a short to voltage:
  - DTC B0070 = Circuit 3481 and circuit 3482
  - DTC B00013 = Circuit 3479 and circuit 3480

⇒ If a short to voltage is found, repair the fault on the circuit.

⇓ If a short to voltage is not found

7.2. Replace the K36 Restraints Control Module.

⇓ **If less than 11 V**

8. Ignition OFF.
9. Verify the SIR system is disabled.
10. Test for greater than 25 Ω between each control circuit terminal listed below and ground:
    - Control circuit terminal 1
    - Control circuit terminal 2

⇒ **If 25 Ω or less**

10.1. Test the following circuits for a short to ground:.
  - DTC B0070 = Circuit 3481 and circuit 3482
  - DTC B000213 = Circuit 3479 and circuit 3480

⇒ If a short to ground is found, repair the fault on the circuit.

⇓ If a short to ground is not found

10.2. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

11. Install a 3 A fused jumper wire between the control circuit terminals 1 and 2, ignition ON.
12. Verify the scan tool Deployment Loop Resistance parameter is less than 2 Ω.

⇒ **If 2 Ω or greater**

13. Verify the SIR system is disabled.

13.1. Test the following circuits for an open/high resistance:
  - DTC B0070 = Circuit 3481 and circuit 3482
  - DTC B0072 = Circuit 3479 and circuit 3480

⇒ If an open/high resistance is found, repair the fault on the circuit.

⇓ If an open/high resistance is not found

13.2. Replace the K36 Restraints Control Module.

⇓ **If less than 2 Ω**

14. Ignition OFF, connect the harness connector at the appropriate F113 Seat Belt Anchor Plate Tensioner, press in the CPA (if equipped) until an audible and/or tactile click is heard.
15. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
16. Verify DTC B0070 or B0072 is not set.

⇒ **If DTC B0070 or B0072 is set**

Replace the appropriate F113 Seat Belt Anchor Plate Tensioner.

⇓ **If DTC B0070 or B0072 is not set**

17. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Front Seat Belt Anchor Plate Tensioner Replacement (Regular Cab) on page 8-626* or *Front Seat Belt Anchor Plate Tensioner Replacement (Double Cab, Crew Cab) on page 8-640* for Seat Belt Anchor Plate Tensioner replacement
- Control Module References for Restraints Control module replacement, programming and setup
- SIR/SRS Wiring Repairs

DTC B007E or B007F

Object-ID=5201483 Owner=Bunker, Timothy LMD=08-Feb-2023 LMB=Bunker, Timothy

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B007E: Driver Seat Belt Retractor

DTC B007F: Co-Driver Seat Belt Retractor

For symptom byte information refer to Symptom Byte List.

Diagnostic Fault Information

Circuit	Circuit Function	Short to Ground	Low Resistance	Open/High Resistance	Short to Voltage	Signal Performance
3477	Control	B007E 11	B007E 1A	B007E 13, B007E 1B	B007E 12	—
3478	Control	B007E 11	B007E 1A	B007E 13, B007E 1B	B007E 12	—
3475	Control	B007F 11	B007F 1A	B007F 13, B007F 1B	B007F 12	—
3476	Control	B007F 11	B007F 1A	B007F 13, B007F 1B	B007F 12	—

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

The F112D Seat Belt Retractor — Driver and F112P Seat Belt Retractor — Passenger are pyrotechnic units that contain an ignitor, which, when supplied with voltage, ignites the propellant in the gas generator. The F112 Seat Belt Retractors are respectively located on the driver and passenger center pillars. The deployment loop has a high control circuit that will supply voltage to deploy the pretensioner and a low control that will supply ground to deploy the pretensioner. The F112D Seat Belt Retractor — Driver uses circuit 3477 as high control and circuit 3478 as low control. The F112P Seat Belt Retractor — Passenger uses circuit 3475 as high control and circuit 3476 as low control. Based on inputs from the impact sensors, the K36 Restraints Control Module will command deployment of the F112 Seat Belt Retractors by simultaneously applying voltage to the high control circuit, and ground to the low control circuit

Conditions for Setting the DTC

B007E 11

Circuit 3477 or circuit 3478 is shorted to ground for 2 s

B007F 11

Circuit 3475 or circuit 3476 is shorted to ground for 2 s

B007E 12

Circuit 3477 or circuit 3478 is shorted to voltage for 2 s

B007F 12

Circuit 3475 or circuit 3476 is shorted to voltage for 2 s

B007E 13

Circuit 3477 or circuit 3478 is open for 2 s

B007F 13

Circuit 3475 or circuit 3476 is open for 2 s

B007E 1B

Circuit 3477 or circuit 3478 resistance is greater than 4.2 Ω for 2 s

B007F 1B

Circuit 3475 or circuit 3476 resistance is greater than 4.2 Ω for 2 s

B007E 1A

Circuit 3477 or circuit 3478 resistance is less than 1.4 Ω for 2 s

B007F 1A

Circuit 3475 or circuit 3476 resistance is less than 1.4 Ω for 2 s

Action Taken When the DTC Sets

- Airbag Indicator ON.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Verify the appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 and 4.0 Ω:
   - F112D Seat Belt Retractor — Driver
   - F112P Seat Belt Retractor — Passenger

⇒ **If less than 2.1 Ω or greater than 4.0 Ω**

Refer to Circuit/System Testing.

⇓ **If between 2.1–4.0 Ω without any spikes or dropouts**

2. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Always test the harness side when circuit testing deployment loops.
- Never test a component on a deployment loop with the DVOM.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  – Seat Belt Retractor
  – Restraints Control module
  – Seat Belt Retractor wiring harness connector
  – Restraints Control module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF.
2. Verify the SIR system is disabled.
3. Disconnect the harness connector at the appropriate F112 Seat Belt Retractor.
4. Test for greater than 25 Ω between the control circuit terminals 1 and circuit terminal 2.

⇒ **If 25 Ω or less**

4.1. Disconnect the X2 harness connector at the K36 Restraints Control Module.

4.2. Verify the appropriate circuits are not shorted together:
   - DTC B007E = Circuit 3477 and circuit 3478
   - DTC B007F = Circuit 3475 and circuit 3476

⇒ If a short between the circuit is found, repair the fault on the circuit.

⇓ If a short between the circuits is not found

4.3. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

5. Ignition ON.
6. Verify the SIR system is disabled.
7. Test for less than 11 V between each control circuit terminal listed below and ground:
   - Control circuit terminal 1
   - Control circuit terminal 2

⇒ **If 11 V or greater**

7.1. Test the following circuits for a short to voltage:
   - DTC B007E = Circuit 3477 and circuit 3478
   - DTC B00013 = Circuit 3475 and circuit 3476

⇒ If a short to voltage is found, repair the fault on the circuit.

⇓ If a short to voltage is not found

7.2. Replace the K36 Restraints Control Module.

⇓ **If less than 11 V**

8. Ignition OFF.
9. Verify the SIR system is disabled.
10. Test for greater than 25 Ω between each control circuit terminal listed below and ground:
    - Control circuit terminal 1
    - Control circuit terminal 2

⇒ **If 25 Ω or less**

10.1. Test the following circuits for a short to ground:
- DTC B007E = Circuit 3477 and circuit 3478
- DTC B000213 = Circuit 3475 and circuit 3476

⇒ If a short to ground is found, repair the fault on the circuit.

⇓ If a short to ground is not found

10.2. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

11. Install a 3 A fused jumper wire between the control circuit terminals 1 and 2, ignition ON.
12. Verify the scan tool Deployment Loop Resistance parameter is less than 2 Ω.

⇒ **If 2 Ω or greater**

12.1. Verify the SIR system is disabled.

12.2. Test the following circuits for an open/high resistance:
- DTC B007E = Circuit 3477 and circuit 3478
- DTC B007F = Circuit 3475 and circuit 3476

⇒ If an open/high resistance is found, repair the fault on the circuit.

⇓ If an open/high resistance is not found

12.3. Replace the K36 Restraints Control Module.

⇓ **If less than 2 Ω**

13. Ignition OFF, connect the harness connector at the appropriate F112 Seat Belt Retractor, press in the CPA (if equipped) until an audible and/or tactile click is heard.
14. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
15. Verify DTC B007E or B007F is not set.

⇒ **If DTC B007E or B007F is set**

Replace the appropriate F112 Seat Belt Retractor.

⇓ **If DTC B007E or B007F is not set**

16. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Front Seat Belt Retractor Replacement (Regular Cab) on page 8-594* or *Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) on page 8-610* for Seat Belt Retractor replacement
- Control Module References for Restraints Control module replacement, programming and setup

DTC B0090-B0098

Object-ID=5909862 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B0090: Airbag Front End Discriminating Sensor - Left

DTC B0091: Airbag Side Impact Sensor - Left Front Door

DTC B0093: Airbag Side Impact Rear Sensor - Left

DTC B0095: Airbag Front End Discriminating Sensor - Right

DTC B0096: Airbag Side Impact Sensor - Right Front Door

DTC B0098: Airbag Side Impact Rear Sensor - Right

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 5 V.
Low Reference	Grounded through the control module.

Component	Description
B58 Front Impact Sensor	The impact sensors detect acceleration and provide input to the Restraints Control Module.
B63 Side Impact Sensor	The impact sensors detect acceleration and provide input to the Restraints Control Module.
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

Ignition = On

Ignition voltage = 9–16 V.

Conditions for Setting the DTC

Any of the following conditions exist for 10 seconds:

B0090 49, B0091 49, B0093 49, B0095 49, B0096 49, B0098 49

- The sensor has experienced an internal electrical failure.
- The sensor current is greater than 23 mA for greater than 5 milliseconds.

B0090 4A, B0091 4A, B0093 4A, B0095 4A, B0096 4A, B0098 4A

- The sensor has been incorrectly installed or not responding.
- The Inflatable Restraints Control Module has not received a message from the sensor for greater than 375 milliseconds.

Action Taken When the DTC Sets

Air Bag Malfunction Indicator = On

System State = Disabled

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.
- An ignition cycle is required for the DTC to go from current to history.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  – Impact sensor
  – Restraints Control Module
  – Restraints Control Module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition ON.
2. Verify that DTC B0090–B0098 symptom byte 49 or 4A is not set as current.

⇒ **If DTC B0090–B0098 symptom byte 49 or 4A is set as current**

Replace the sensor listed below:

- B0090 — B58L Airbag Front End Discriminating Sensor-Left
- B0091 — B63LF Airbag Side Impact Sensor-Left Front Door
- B0093 — B63LR Airbag Side Impact Rear Sensor-Left Door
- B0095 — B58R Airbag Front End Discriminating Sensor-Right
- B0096 — B63RF Airbag Side Impact Sensor-Right Front Door
- B0098 — B63RR Airbag Side Impact Rear Sensor-Right Door

⇓ **If DTC B0090–B0098 symptom byte 49 or 4A is not set as current**

3. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Airbag Side Impact Sensor Replacement on page 8-487* or *Airbag Side Impact Sensor Replacement on page 8-491*
- *Airbag Side Impact Rear Sensor Replacement (Double Cab) on page 8-578* or *Airbag Side Impact Rear Sensor Replacement (Crew Cab) on page 8-584* or *Airbag Side Impact Rear Sensor Replacement on page 8-590*
- *Airbag Front End Discriminating Sensor Replacement on page 8-483*

DTC B10B4 or B120C

Object-ID=5198195 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B10B4: Left Front Discriminating Sensor Signal

DTC B120C: Right Front Discriminating Sensor Signal

Diagnostic Fault Information

Circuit	Circuit Function	Short to Ground	Open/Short to Voltage	Invalid Serial Data	Signal Performance
354	Signal	B10B4 11	B10B4 15	B10B4 81	-
5045	Low Reference	B10B4 11	B10B4 15	B10B4 81	-
1409	Signal	B120C 11	B120C 15	B120C 81	-
5600	Low Refrence	B120C 11	B120C 15	B120C 81	-

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

The B58L Airbag Front End Discriminating Sensor - Left, and B58R Airbag Front End Discriminating Sensor - Right, are sensors that detect acceleration and provide input to the K36 Restraints Control Module. The K36 Restraints Control Module monitors the inputs given by several sensors and when a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact. The B58 Front Impact Sensors are generally located on the radiator core support. The B58L Airbag Front End Discriminating Sensor - Left, uses circuit 354 as the signal circuit and circuit 5045 as the low reference circuit. B58R Airbag Front End Discriminating Sensor - Right, uses circuit 1409 as the signal circuit and circuit 5600 as the low reference circuit. The signal circuit on both impact sensors is the control module input and has an internal resistance connected to 5 V. The low reference circuit is grounded through the control module.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

Any of the following conditions exist for 10 seconds:

B10B4 11

- The sensor has been shorted to ground.
- The sensor current is greater than 23 mA for greater than 5 ms.

B120C 11

- The sensor has been shorted to ground.
- The sensor current is greater than 23 mA for greater than 5 ms.

B10B4 15

- The sensor circuit is open or short to voltage.
- The Restraints Control Module has not received a message from the sensor for greater than 375 milliseconds.

B120C 15

- The sensor circuit is open or short to voltage.
- The Restraints Control Module has not received a message from the sensor for greater than 375 milliseconds.

B10B4 81

The Restraints Control Module has received invalid serial data from the sensor.

B120C 81

The Restraints Control Module has received invalid serial data from the sensor.

Action Taken When the DTC Sets

The Restraints Control Module requests the instrument cluster to illuminate the airbag indicator.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.
- An ignition cycle is required for the DTC to go from current to history.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Ignition ON.
2. Verify that DTC B10B4 or B120C symptom byte 81 is not set as current.

⇒ **If DTC B10B4 or B120C symptom byte 81 is set as current**

Replace the appropriate B58 Front Impact Sensor.

⇓ **If DTC B10B4 or B120C symptom byte 81 is not set as current**

3. Verify that DTC B10B4 or B120C symptom byte 11 or 15 is not set as current.

⇒ **If DTC B10B4 or B120C symptom byte 11 or 15 is set as current**

Refer to Circuit/System Testing.

⇓ **If DTC B10B4 or B120C symptom byte 11 or 15 is not set as current**

4. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  – Impact sensor
  – Restraints Control Module
  – Impact sensor wiring harness connector
  – Restraints Control Module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF. It may take up to 2 min for all vehicle systems to power down.
2. Verify the SIR system is disabled.
3. Disconnect the harness connector at the appropriate B58 Front Impact Sensor.
4. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.

⇒ **If 10 Ω or greater**

4.1. Disconnect the appropriate harness connector at the K36 Restraints Control Module.

4.2. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Restraints Control Module.

⇓ **If less than 10 Ω**

5. Test for greater than 50k Ω between the signal circuit terminal 1 and ground.

⇒ **If 50k Ω or less**

5.1. Test the following circuits for a short to ground.
  - DTC B10B4 = Circuit 354
  - DTC B120C = Circuit 1409

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K36 Restraints Control Module.

⇓ **If greater than 50k Ω**

6. Ignition ON,
7. Verify the SIR system is disabled.
8. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

8.1. Ignition OFF, disconnect the harness connector at the K36 Restraints Control Module, ignition ON.

8.2. Test between the following circuits for short to voltage:

- DTC B10B4 = Circuit 354, and Circuit 5045
- DTC B120C = Circuit 1409, and Circuit 5600

⇒ If greater than 1 V, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K36 Restraints Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

9. Ignition OFF.
10. Verify the SIR system is disabled.
11. Install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V. Ignition ON.
12. Verify the MAX voltage captured by the DMM is between 4–9V.

⇒ **If less than 4 V**

12.1. Verify the SIR system is disabled.

12.2. Disconnect the appropriate harness connector at the K36 Restraints Control Module.

12.3. Test between the following circuits for short to ground:

- DTC B10B4 = Circuit 354, and Circuit 5045
- DTC B120C = Circuit 1409, and Circuit 5600

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

12.4. Test the following circuits for open/high resistance:

- DTC B10B4 = Circuit 354
- DTC B120C = Circuit 1409

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the Restraints Control Module.

⇒ **If greater than 9V**

12.1. Ignition OFF. Disconnect the appropriate harness connector at the K36 Restraints Control Module. Ignition ON.

12.2. Test for short to voltage between ground and the following circuits:

- DTC B10B4 = Circuit 354
- DTC B120C = Circuit 1409

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K36 Restraints Control Module.

⇓ **If between 4–9V**

13. Ignition OFF, connect all harness connectors, press in the CPA (if equipped) until an audible and/or tactile click is heard.
14. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
15. Verify DTC B10B4 or B120C is not set.

⇒ **If the DTC sets**

15.1. Replace the B58 Front Impact Sensor.

15.2. Verify the DTC does not set.

⇒ If the DTC sets, replace the K36 Restraints Control Module.

⇓ If the DTC does not set.

15.3. All OK.

⇓ **If the DTC does not set**

16. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Airbag Front End Discriminating Sensor Replacement on page 8-483*
- Control Module References for Restraints Control Module control module replacement, programming and setup

DTC B12D4 or B12D5

Object-ID=5198198 Owner=Bunker, Timothy LMD=15-Nov-2022 LMB=Bunker, Timothy

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B12D4: Left Front Side Impact Sensing Module Signal

DTC B12D5: Right Front Side Impact Sensing Module Signal

Diagnostic Fault Information

Circuit	Circuit Function	Short to Ground	Open/Short to Voltage	Invalid Serial Data	Signal Performance
2132	Signal	B12D4 11	B12D4 15	B12D4 81	-
6628	Low Reference	B12D4 11	B12D4 15	B12D4 81	-
2134	Signal	B12D5 11	B12D5 15	B12D5 81	-
6629	Low Reference	B12D5 11	B12D5 15	B12D5 81	-

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

The B63LF Airbag Side Impact Sensor - Left Front Door, and B63RF Airbag Side Impact Sensor - Right Front Door, are sensors that detect acceleration and provide input to the K36 Restraints Control Module. The K36 Restraints Control Module monitors the inputs given by several sensors and when a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact. The B63 Side Impact Sensors are generally located inside the front doors, behind the interior door panel. The B63LF Airbag Side Impact Sensor - Left Front Door, uses circuit 2132 as the signal circuit and circuit 6628 as the low reference circuit. The B63RF Airbag Side Impact Sensor - Right Front Door, uses circuit 2134 as the signal circuit and circuit 6629 as the low reference circuit. The signal circuit on both impact sensors is the control module input and has an internal resistance connected to 5 V. The low reference circuit is grounded through the control module.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

B12D4 11

- The sensor has been shorted to ground.
- The sensor current is greater than 23 mA for greater than 5 ms.

B12D5 11

- The sensor has been shorted to ground.
- The sensor current is greater than 23 mA for greater than 5 ms.

B12D4 15

- The sensor circuit is open or short to voltage.
- The Restraints Control Module has not received a message from the sensor for greater than 375 milliseconds.

B12D5 15

- The sensor circuit is open or short to voltage.
- The Restraints Control Module has not received a message from the sensor for greater than 375 milliseconds.

B12D4 81

The Restraints Control Module has received invalid serial data from the sensor.

B12D5 81

The Restraints Control Module has received invalid serial data from the sensor.

Action Taken When the DTC Sets

The Restraints Control Module requests the instrument cluster to illuminate the airbag indicator.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.
- An ignition cycle is required for the DTC to go from current to history.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Ignition ON.
2. Verify that DTC B12D4 or B12D5 symptom byte 81 is not set as current.

⇒ **If DTC B12D4 or B12D5 symptom byte 81 is set as current**

Replace the appropriate B63 Side Impact Sensor.

⇓ **If DTC B12D4 or B12D5 symptom byte 81 is not set as current**

3. Verify that DTC B12D4 or B12D5 symptom byte 11 or 15 is not set as current.

⇒ **If DTC B12D4 or B12D5 symptom byte 11 or 15 is set as current**

Refer to Circuit/System Testing.

⇓ **If DTC B12D4 or B12D5 symptom byte 11 or 15 is not set as current**

4. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - – Impact sensor
  - – Restraints Control Module
  - – Impact sensor wiring harness connector
  - – Restraints Control Module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF. It may take up to 2 min for all vehicle systems to power down.
2. Verify the SIR system is disabled.
3. Disconnect the harness connector at the appropriate B63 Front Side Impact Sensor.
4. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.

⇒ **If 10 Ω or greater**

4.1. Disconnect the X2 harness connector at the K36 Restraints Control Module.

4.2. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Restraints Control Module.

⇓ **If less than 10 Ω**

5. Test for greater than 50k Ω between the signal circuit terminal 1 and ground.

⇒ **If 50k Ω or less**

5.1. Test the following circuits for a short to ground.

- DTC B12D4 = Circuit 2132
- DTC B12D5 = Circuit 2134

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K36 Restraints Control Module.

⇓ **If greater than 50k Ω**

6. Ignition OFF.
7. Verify the SIR system is disabled.
8. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

8.1. Ignition OFF.

8.2. Verify the SIR system is disabled.

8.3. Disconnect the harness connector at the K36 Restraints Control Module, ignition ON.

8.4. Test between the following circuits for short to voltage:

- DTC B12D4 = Circuit 2132, and Circuit 6628
- DTC B12D5 = Circuit 2134, and Circuit 6629

⇒ If greater than 1 V, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K36 Restraints Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

9. Ignition ON, Vehicle in service mode.
10. Install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V. Ignition ON.
11. Verify the MAX voltage captured by the DMM is between 4–9V.

⇒ **If less than 4 V**

11.1. Ignition OFF.

11.2. Verify the SIR system is disabled.

11.3. Disconnect the X2 harness connector at the K36 Restraints Control Module.

11.4. Test between the following circuits for short to ground:

- DTC B12D4 = Circuit 2132, and Circuit 6628
- DTC B12D5 = Circuit 2134, and Circuit 6629

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

11.5. Test the following circuits for open/high resistance:

- DTC B12D4 = Circuit 2132
- DTC B12D5 = Circuit 2134

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the Restraints Control Module.

⇒ **If greater than 9V**

11.1. Ignition OFF.

11.2. Verify the SIR system is disabled.

11.3. Disconnect the X2 harness connector at the K36 Restraints Control Module. Ignition ON.

11.4. Test for short to voltage between ground and the following circuits:

- DTC B12D4 = Circuit 2132
- DTC B12D5 = Circuit 2134

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K36 Restraints Control Module.

⇓ **If between 4–9V**

12. Ignition OFF, connect all harness connectors, press in the CPA (if equipped) until an audible and/or tactile click is heard.
13. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
14. Verify DTC B12D4 or B12D5 is not set.

⇒ **If the DTC sets**

14.1. Replace the appropriate B63 Side Impact Sensor.

14.2. Verify the DTC does not set.

⇒ If the DTC sets, replace the K36 Restraints Control Module.

⇓ If the DTC does not set.

14.3. All OK.

⇓ **If the DTC does not set**

15. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Airbag Side Impact Sensor Replacement on page 8-487* or *Airbag Side Impact Sensor Replacement on page 8-491*
- Control Module References for Restraints Control Module control module replacement, programming and setup

DTC B13A9

Object-ID=5987932 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B13A9: Roof Rail Air Bag Disable Switch Signal

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal — Terminal 3 @ S171L Instrument Panel Center Accessory Function Switch - Left	B13A9 11	B13A9 13	B13A9 12	—
Low Reference — Terminal 10 @ S171L Instrument Panel Center Accessory Function Switch - Left	—	B13A9 13	—	—

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 5 V.
Low Reference	Grounded through the control module.

Component	Description
K36 Inflatable Restraint Sensing and Diagnostic Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.
S171L Instrument Panel Center Accessory Function Switch - Left	The switch has a normally open contact.

Conditions for Running the DTC

- Ignition = On
- Ignition Voltage = 9 to 16 V

Conditions for Setting the DTC

B13A9 02

Signal = Short to Ground — For greater than 2 s

B13A9 12

Signal = Short to Voltage or Open/High Resistance — For greater than 2 s

Actions Taken When the DTC Sets

Air Bag Malfunction Indicator = On

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note : Refer to: SIR Service Precautions on page 8-483

1. Ignition » On / Vehicle » In Service Mode
2. Press and release the switch: S171L Instrument Panel Center Accessory Function Switch - Left

   Verify the component works as specified: Rollover Sensor — Indicators = On and Off

   ⇒ **If the component does not turn On and Off**

   Refer to: Circuit/System Testing
3. All OK.

Circuit/System Testing

Note: Refer to: SIR Service Precautions on page 8-483

Refer to: SIR Disabling and Enabling on page 8-481.

Note : It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems » Off
2. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left
3. Test for less than 10 Ω between the test points: Low Reference circuit terminal 10 & Ground

   ⇒ **If 10 Ω or greater**

   3.1. Before attempting these procedures, the SIR system must be disabled.

   3.2. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module

   3.3. Test for less than 2 Ω between the test points: Low Reference circuit terminal 10 @ Component harness & Terminal 50 @ Control module harness

   ⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.

   ⇒ If less than 2 Ω » Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

   ⇓ **If less than 10 Ω**
4. Connect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left
5. Before attempting these procedures, the SIR system must be disabled.
6. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
7. Ignition » On / Vehicle » In Service Mode
8. Test for less than 1 V between the test points: Signal circuit terminal 51 & Ground

   ⇒ **If 1 V or greater**

   8.1. Ignition/Vehicle & All vehicle systems » Off

   8.2. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left

   8.3. Ignition » On / Vehicle » In Service Mode

   8.4. Test for less than 1 V between the test points: Signal circuit terminal 51 @ Control module harness & Ground

   ⇒ If 1 V or greater » Repair the short to voltage on the circuit.

   ⇒ If less than 1 V » Test or replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

   ⇓ **If less than 1 V**
9. Ignition/Vehicle & All vehicle systems » Off
10. Test for infinite resistance between the test points: Signal circuit terminal 51 & Ground

    ⇒ **If less than infinite resistance**

    10.1. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left

    10.2. Test for infinite resistance between the test points: Signal circuit terminal 51 @ Control module harness & Ground

    ⇒ If less than infinite resistance » Repair the short to ground on the circuit.

    ⇒ If infinite resistance » Replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

    ⇓ **If infinite resistance**
11. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left
12. Test for less than 2 Ω between the test points: Signal circuit terminal 3 & The other end of the circuit @ Control module harness

    ⇒ **If 2 Ω or greater**

    Repair the open/high resistance in the circuit.

    ⇓ **If less than 2 Ω**
13. Test for 360 to 440 Ω between the test points: Signal circuit terminal 51 & Low Reference circuit terminal 50.

    ⇒ **If not between 360 and 440 Ω**

    13.1. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left

    13.2. Test for less than 2 Ω between the test points: Signal circuit terminal 51 @ Control module harness & Terminal 3 @ Component harness

- ⇒ If 2 Ω or greater » Repair the open/high resistance in the circuit.
- ⇒ If less than 2 Ω » Replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

⇓ **If between 360 and 440 Ω**

14. Press and hold the switch: S171L Instrument Panel Center Accessory Function Switch - Left

    Test for 90 to 110 Ω between the test points: Signal circuit terminal 51 & Low Reference circuit terminal 50.

⇒ **If not between 90 and 110 Ω**

Replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

⇓ **If between 90 and 110 Ω**

15. Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

Component Testing

1. Ignition/Vehicle » Off
2. Disconnect the electrical connector: S171L Instrument Panel Center Accessory Function Switch - Left
3. Test for 360 to 440 Ω between the test points: Signal terminal 3 & Low Reference terminal 10 — The switch is in the open position.

⇒ **If not between 360 and 440 Ω**

Replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

⇓ **If between 360 and 440 Ω**

4. Test for 90 to 110 Ω between the test points: Signal terminal 3 & Low Reference terminal 10 — The switch is in the closed position.

⇒ **If not between 90 and 110 Ω**

Replace the component: S171L Instrument Panel Center Accessory Function Switch - Left

⇓ **If between 90 and 110 Ω**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- For control module replacement, programming, and setup refer to: Control Module References

DTC B1491

Object-ID=5198634 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

DTC B1491: Co-Driver Automatic Locking Retractor Switch Signal

Diagnostic Fault Information

Circuit	Circuit Function	Short to Ground	Circuit Voltage Below Threshold	Circuit Voltage Above Threshold	Open Circuit	Circuit Voltage Out of Range	Signal Performance
3947	Signal	B1491 11	B1491 16	B1491 17	B1491 13	B1491 1C	B1491 64
3946	Low Reference	B1491 11	B1491 16	B1491 17	B1491 13	B1491 1C	B1491 64

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

The B61P Seat Belt Tension Sensor — Passenger is a 2–wire hall effect current sensor and mounted on the passenger seat belt retractor to measure the seat belt tension. If the shoulder portion of a passenger seat belt is fully extended, the infant car seat restraint locking feature may be engaged, disabling the passenger Airbag. The B61P Seat Belt Tension Sensor — Passenger uses circuit 3947 as the signal circuit, and circuit 3946 as the low reference circuit. The signal circuit has an internal resistance connected to 5 V and the low reference circuit is grounded through the K85P Restraint Occupant Classification System Module - Passenger.

Conditions for Running the DTC

- Ignition ON
- Ignition Voltage = 9 to 16 V

Conditions for Setting the DTC

- Passenger seat Belt tension Sensor — Signal circuit = Less than .5 V or Greater than 4.5 V
- Passenger Seat Belt Tension Sensor — Low Reference circuit = Greater than 25 mA

The above condition(s) must occur for greater than 1 s

Actions Taken When the DTC Sets

System State may be disabled depending on certain conditions

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 100 consecutive malfunction-free ignition cycles

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON / Vehicle In Service Mode.
2. Verify that DTC B1491 is not set as current.

⇒ **If DTC B1491 is set as current**

Refer to Circuit/System Testing.

⇓ **If DTC B1491 is not set as current**

3. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- inspect the terminals of the following components and connectors for damage or corrosion and repair or replace as necessary:
  - B61P Seat Belt Tension Sensor - Passenger
  - K85P Restraint Occupant Classification System Module - Passenger
  - Inline Harness Connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition/Vehicle & All vehicle systems OFF
2. Disconnect the harness connector at the B61P Seat Belt Tension Sensor - Passenger
3. Test for less than 10 Ω between low reference circuit terminal 1 and ground

⇒ **If 10 Ω or greater**

3.1. Test circuit 3946 for an open.

⇒ If an open circuit is found, repair the fault on the circuit.

⇓ If an open circuit is not found

3.2. Replace the K85P Restraints Occupant Classification System Control Module

⇓ **If less than 10 Ω**

4. Ignition On / Vehicle In Service Mode
5. Test for less than 6 V between the test points: Signal circuit terminal 2 and Ground.

⇒ **If 6 V or greater**

5.1. Ignition/Vehicle & All vehicle systems OFF

5.2. Disconnect the electrical connector K85P Restraint Occupant Classification System Module - Passenger

5.3. Ignition ON / Vehicle In Service Mode

5.4. Test Circuit 3947 for short to voltage

⇒ If short to voltage is found, repair the fault on the circuit.

⇓ If short to voltage is not found

5.5. Replace K85P Restraint Occupant Classification System Module — Passenger

⇓ **If less than 6 V**

6. Ignition/Vehicle & All vehicle systems OFF
7. Test for greater than 5 kΩ between the test points: Signal circuit terminal 2 and Ground

⇒ **If 5 kΩ or less**

7.1. Disconnect the K85P Restraint Occupant Classification System Module — Passenger

7.2. Test circuit 3947 for short to ground

⇒ If short to ground found, repair the fault on the circuit

⇓ If infinite resistance

7.3. Replace the K85P Restraint Occupant Classification System Module - Passenger

⇓ **If Greater than 5 kΩ**

8. Disconnect the K85P Restraint Occupant Classification System Module - Passenger
9. Test for less than 2 Ω between the test points: Signal circuit terminal 2 at B61P Seat Belt Tension Sensor - Passenger and The other end of the circuit at Control module harness

⇒ **If 2 Ω or greater**

Repair the open/high resistance in the circuit.

⇓ **If less than 2 Ω**

10. If all conditions test normal = Replace the B61P Seat Belt Tension Sensor - Passenger
11. Operate the vehicle within the Conditions for Running the DTC
12. Verify the DTC B1491 is not set.

⇒ **If the DTC is set**

Replace the K85P Restraint Occupant Classification System Module - Passenger

⇓ **If the DTC is not set**

13. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

- *Front Seat Belt Retractor Replacement (Regular Cab) on page 8-594* or *Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) on page 8-610* — B61P Seat Belt Tension Sensor - Passenger
- SIR/SRS Wiring Repairs
- For control module replacement, programming, and setup refer to Control Module References

DTC B15DF or B15E3

Object-ID=5197864 Owner=Bunker, Timothy LMD=21-Mar-2023 LMB=Bunker, Timothy

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B15DF: Co-Driver Thorax Module High Control

DTC B15E3: Driver Thorax Module High Control

Diagnostic Fault Information

Circuit	Circuit Function	Short to Ground	Open/High Resistance	Open Circuit	Low Resistance	Short to Voltage	Signal Performance
4956	Control	B15DF 11	B15DF 1B	B15DF 13	B15DF 1A	B15DF 12	—
4957	Control	B15DF 11	B15DF 1B	B15DF 13	B15DF 1A	B15DF 12	—
4962	Control	B15E3 11	B15E3 1B	B15E3 13	B15E3 1A	B15E3 12	—
4963	Control	B15E3 11	B15E3 1B	B15E3 13	B15E3 1A	B15E3 12	—

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

The F106P Front Seat Outboard Seat Back Airbag-Passenger and F106D Front Seat Outboard Seat Back Airbag — Driver, are single stage inflators located within the passenger and driver seats respectively. The F106 Seat Side Airbags contain a housing, inflating device, a canister of gas generating material and, in some cases, stored compressed gas. The deployment loop has a high control circuit that will supply voltage to deploy the airbag and a low control that will supply ground to deploy the airbag. The F106P Front Seat Outboard Seat Back Airbag- Passenger uses circuit 4956 as high control and circuit 4957 as low control. The F106D Front Seat Outboard Seat Back Airbag — Driver uses circuit 4962 as high control and circuit 4963 as low control. Based on inputs from the impact sensors, the K36 Restraints Control Module will command deployment of the F106P Side Seat Airbags by simultaneously applying voltage to the high control circuit, and ground to the low control circuit .

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

B15DF 12

Circuit 4956 or circuit 4957 is shorted to voltage for 2 seconds.

B15E3 12

Circuit 4962 or circuit 4963 is shorted to voltage for 2 seconds.

B15DF 11

Circuit 4956 or circuit 4957 is shorted to ground for 2 seconds.

B15E3 11

Circuit 4962 or circuit 4963 is shorted to ground for 2 seconds.

B15DF 13

Circuit 4956 or circuit 4957 is open for 2 seconds.

B15E3 13

Circuit 4962 or circuit 4963 is open for 2 seconds.

B15DF 1B

Circuit 4956 or circuit 4957 resistance is greater than 4.2 Ω for 2 seconds.

B15E3 1B

Circuit 4962 or circuit 4963 resistance is greater than 4.2 Ω for 2 seconds.

B15DF 1A

Circuit 4956 or circuit 4957 resistance is less than 1.4 Ω for 2 seconds.

B15E3 1A

Circuit 4962 or circuit 4963 resistance is less than 1.4 Ω for 2 seconds.

Action Taken When the DTC Sets

- The Restraints Control module requests the instrument cluster to illuminate the Airbag indicator.
- The Restraints Control module will store a DTC, however if an event occurs the system will still attempt deployments.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Verify the appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 and 4.0 Ω:
   - F106P Seat Side Airbag — Passenger
   - F106D Seat Side Airbag — Driver

⇒ **If less than 2.1 Ω or greater than 4.0 Ω**

Refer to Circuit/System Testing.

⇓ **If between 2.1–4.0 Ω without any spikes or dropouts**

2. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - Seat side airbag
  - Restraints Control module
  - All wiring harness connectors
  - Restraints Control module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF, scan tool disconnected.
2. Verify the SIR system is disabled.
3. Disconnect the harness connector at the appropriate F106 Seat Side Airbag.
4. Test for greater than 25 Ω between the control circuit terminals 1 and 2.

⇒ **If 25 Ω or less**

4.1. Disconnect the X2 harness connector at the K36 Restraints Control Module.

4.2. Verify the appropriate circuits are not shorted together.
   - DTC B15DF = Circuit 4956 and Circuit 4957
   - DTC B15E3 = Circuit 4962 and Circuit 4963

⇒ If less than infinite resistance, repair the short between the 2 circuits.

⇓ If a short between the circuits is not found

4.3. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

5. Ignition ON.
6. Verify the SIR system is disabled.
7. Test for less than 11 V between each control circuit terminal listed below and ground:
   - Control circuit terminal 1
   - Control circuit terminal 2

⇒ **If 11 V or greater**

7.1. Test the following circuits for a short to voltage:
   - DTC B15DF = Circuit 4956 and Circuit 4957
   - DTC B15E3 = Circuit 4962 and Circuit 4963

⇒ If a short to voltage is found, repair the fault on the circuit.

⇓ If a short to voltage is not found

7.2. Replace the K36 Restraints Control Module.

⇓ **If less than 11 V**

8. Ignition OFF.
9. Verify the SIR system is disabled.
10. Test for greater than 25 Ω between each control circuit terminal listed below and ground:
    - Control circuit terminal 1
    - Control circuit terminal 2

⇒ **If 25 Ω or less**

10.1. Test the following circuits for a short to ground:

- DTC B15DF = Circuit 4956 and Circuit 4957
- DTC B15E3 = Circuit 4962 and Circuit 4963

⇒ If a short to ground is found, repair the fault on the circuit.

⇓ If a short to ground is not found

10.2. Replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

11. Verify the SIR system is disabled.
12. Install a 3 A fused jumper wire between the control circuit terminal 1 and terminal 2, ignition ON.
13. Verify the appropriate scan tool Deployment Loop Resistance parameter is less than 2 Ω.

⇒ **If 2 Ω or greater**

13.1. Verify the SIR system is disabled.

13.2. Test the following circuits for an open/high resistance:

- DTC B15DF = Circuit 4956 and Circuit 4957
- DTC B15E3 = Circuit 4962 and Circuit 4963

⇒ If an open/high resistance is found, repair the fault on the circuit.

⇓ If an open/high resistance is not found

13.3. Replace the K36 Restraints Control Module.

⇓ **If less than 2 Ω**

14. Ignition OFF, connect the harness connector at the F106 Seat Side Airbag, press in the CPA (if equipped) until an audible and/or tactile click is heard.
15. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
16. Verify DTC B15DF or B15E3 is not set.

⇒ **If DTC B15DF or B15E3 is set**

Test or replace the appropriate F106 Seat Side Airbag.

⇓ **If DTC B15DF or B15E3 is not set**

17. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Front Seat Outboard Seat Back Airbag Replacement (Manual) on page 8-570* or *Front Seat Outboard Seat Back Airbag Replacement (Power) on page 8-574*
- Control Module References for Restraints Control module replacement, programming, and setup
- SIR/SRS Wiring Repairs

DTC B1619 or B161A

Object-ID=5197885 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1619: Left Rear Seat Belt Pretensioner Control

DTC B161A: Right Rear Seat Belt Pretensioner Control

For symptom byte information refer to Symptom Byte List.

Diagnostic Fault Information

Circuit	Short to Ground	Low Resistance	Open/High Resistance	Short to Voltage	Signal Performance
Control — Terminal 1, 2 @ F112LR Left Rear Seat Belt Pretensioner	B1619 11	B1619 1A	B1619 13, B1619 1B	B1619 12	—
Control — Terminal 1, 2 @ F112LR Left Rear Seat Belt Pretensioner	B1619 11	B1619 1A	B1619 13, B1619 1B	B1619 12	—
Control — Terminal 1, 2 @ F112RR Right Rear Seat Belt Pretensioner	B161A 11	B161A 1A	B161A 13, B161A 1B	B161A 12	—
Control — Terminal 1, 2 @ F112RR Right Rear Seat Belt Pretensioner	B161A 11	B161A 1A	B161A 13, B161A 1B	B161A 12	—

Circuit/System Description

During a side or frontal crash of sufficient force the Restraints Control Module (SDM) will allow current to flow through the deployment loop in order to deploy an air bag or pretensioner.

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Circuit	Description
Control — Terminal 1	The output circuit is switched to 12 V to activate the component.
Control — Terminal 2	The output circuit is switched to ground to activate the component.

Component	Description
F112 Seat Belt Retractor Pretensioner	The pyrotechnic unit contains an ignitor, which, when supplied with voltage, ignites the propellant in the gas generator.
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

B1619 12, B161A 12

The pretensioner control circuit is shorted to voltage for 2 s

B1619 11, B161A 11

The pretensioner control circuit is shorted to ground for 2 s

B1619 13, B161A 13

The pretensioner control circuit is open for 2 s

B1619 1B, B161A 1B, B1619 1B, B161A 1B

The pretensioner deployment loop resistance is greater than 4.2 Ω for 2 s

B1619 1A, B161A 1A, B1619 1A, B161A 1A

The pretensioner deployment loop resistance is less than 1.4 Ω for 2 s

Action Taken When the DTC Sets

- The Restraints Control Module requests the instrument cluster to illuminate the AIR BAG indicator.
- The Restraints Control Module will store a DTC, however if an event occurs the system will still attempt deployments.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Verify the appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 and 4.0 Ω for the F112 Seat Belt Retractor Pretensioner.

⇒ **If less than 2.1 Ω or greater than 4.0 Ω**

Refer to Circuit/System Testing.

⇓ **If between 2.1–4.0 Ω without any spikes or dropouts**

2. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - Seat belt retractor pretensioner
  - Restraints Control Module
  - Seat belt retractor pretensioner wiring harness connector
  - Restraints Control Module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF, scan tool disconnected.. It may take up to 2 min for all vehicle systems to power down.
2. Verify the SIR system is disabled.
3. Disconnect the harness connector at the appropriate F112 Seat Belt Retractor Pretensioner.
4. Test for greater than 25 Ω between the control circuit terminals 1 and 2.

⇒ **If 25 Ω or less**

4.1. Disconnect the X2 harness connector at the K36 Restraints Control Module.

4.2. Test for infinite resistance between the two control circuits.

⇒ If less than infinite resistance, repair the short between the two circuits.

⇒ If infinite resistance, replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

5. Ignition ON.
6. Verify the SIR system is disabled.
7. Test for less than 11 V between each control circuit terminal listed below and ground:
   - Control circuit terminal 1
   - Control circuit terminal 2

⇒ **If 11 V or greater**

7.1. Ignition OFF, disconnect the X2 harness connector at the K36 Restraints Control Module, ignition ON

7.2. Test for less than 1 V between the control circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K36 Restraints Control Module.

⇓ **If less than 11 V**

8. Ignition OFF.
9. Verify the SIR system is disabled.
10. Test for greater than 25 Ω between each control circuit terminal listed below and ground:
    - Control circuit terminal 1
    - Control circuit terminal 2

⇒ **If 25 Ω or less**

10.1. Disconnect the X2 harness connector at the K36 Restraints Control Module.

10.2. Test for infinite resistance between the control circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K36 Restraints Control Module.

⇓ **If greater than 25 Ω**

11. Install a 3 A fused jumper wire between the control circuit terminals 1 and 2, ignition ON.
12. Verify the scan tool Deployment Loop Resistance parameter is less than 2 Ω.

⇒ **If 2 Ω or greater**

12.1. Ignition OFF.

12.2. Verify the SIR system is disabled.

12.3. Disconnect the X2 harness connector at the K36 Restraints Control Module.

12.4. Test for less than 2 Ω in each control circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Restraints Control Module.

⇓ **If less than 2 Ω**

13. Ignition OFF, connect the harness connector at the F112 Seat Belt Retractor Pretensioner, press in the CPA (if equipped) until an audible and/or tactile click is heard.
14. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
15. Verify DTC B1619 or B161A is not set.

⇒ **If DTC B1619 or B161A is set**

Replace the appropriate F112 Seat Belt Retractor Pretensioner.

⇓ **If DTC B1619 or B161A is not set**

16. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Rear Seat Belt Retractor Replacement on page 8-414* for seat belt anchor pretensioner replacement
- Control Module References for Restraints Control Module replacement, programming, and setup

DTC B17F0 or B17F2

Object-ID=5909890 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B17F2: Right Rear Side Impact Sensor Signal

DTC B17F0: Left Rear Side Impact Sensor Signal

Diagnostic Fault Information

Circuit	Circuit Function	Short to Ground	Short to Voltage/Open	Signal Performance
6626	Signal	B17F2 11	B17F2 15	B17F2 81
6627	Low Reference	B17F2 11	B17F2 15	B17F2 81
6622	Signal	B17F0 11	B17F0 15	B17F0 81
6623	Low Reference	B17F0 11	B17F0 15	B17F0 81

Circuit/System Description

The B63LR Airbag Side Impact Rear Sensor - Left Door, and B63RR Airbag Side Impact Rear Sensor - Right Door, are sensors that detect acceleration and provide input to the K36 Restraints Control Module. The K36 Restraints Control Module monitors the inputs given by several sensors and when a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact. The B63 Side Impact Sensors are generally located on the rear door sill, behind the rear quarter trim panel. The B63LR Airbag Side Impact Rear Sensor - Left Door, uses circuit 6623 as the signal circuit and circuit 6622 as the low reference circuit. The B63RR Airbag Side Impact Rear Sensor - Right Door, uses circuit 6626 as the signal circuit and circuit 6627 as the low reference circuit. The signal circuit on both impact sensors is the control module input and has an internal resistance connected to 5 V. The low reference circuit is grounded through the control module.

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Conditions for Running the DTC

- Ignition ON
- Ignition voltage is between 9–16 V

Conditions for Setting the DTC

Any of the following conditions exist for 10 seconds:

B17F2 11

- The sensor has been shorted to ground.
- The sensor current is greater than 23 mA for greater than 5 ms.

B17F0 11

- The sensor has been shorted to ground.
- The sensor current is greater than 23 mA for greater than 5 ms.

B17F2 15

- The sensor circuit is open or shorted to voltage.
- The Restraints Control Module has not received a message from the sensor for greater than 375 milliseconds.

B17F0 15

- The sensor circuit is open or shorted to voltage.
- The Restraints Control Module has not received a message from the sensor for greater than 375 milliseconds.

B17F2 81

The Restraints Control Module has received invalid serial data from the sensor.

B17F0 81

The Restraints Control Module has received invalid serial data from the sensor.

Action Taken When the DTC Sets

The Restraints Control Module requests the instrument cluster to illuminate the airbag indicator.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.
- An ignition cycle is required for the DTC to go from current to history.

Diagnostic Aid

Note: The following diagnostic aids apply for both current and history DTCs.

Refer to *SIR Disabling and Enabling on page 8-481*.

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with a reappearance of the malfunction.

An incorrectly seated connector can cause an open/ high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 1B is set.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note: The condition may be intermittent and require driving the vehicle, then reviewing the snapshot to verify resistance parameters do not drop out or spike.

1. Ignition ON.
2. Verify that DTC B17F2 or B17F0 symptom byte 81 is not set as current.

⇒ **If DTC B17F2 or B17F0 symptom byte 81 is set as current**

Replace the appropriate B63 Side Impact Sensor.

⇓ **If DTC B17F2 or B17F0 symptom byte 81 is not set as current**

3. Verify that DTC B17F2 or B17F0 symptom byte 11 or 15 is not set as current.

⇒ **If DTC B17F2 of B17F0 symptom byte 11 or 15 is set as current**

Refer to Circuit/System Testing.

⇓ **If DTC B17F2 or B17F0 symptom byte 11 or 15 is not set as current**

4. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
  - Impact sensor
  - Restraints Control Module
  - Impact sensor wiring harness connector
  - Restraints Control Module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click.

1. Ignition OFF. It may take up to 2 min for all vehicle systems to power down.
2. Verify the SIR system is disabled.
3. Disconnect the harness connector at the appropriate B63 Side Impact Sensor.
4. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.

⇒ **If 10 Ω or greater**

4.1. Disconnect the X2 harness connector at the K36 Restraints Control Module.

4.2. Test for less than 2 Ω in the low reference circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the K36 Restraints Control Module.

⇓ **If less than 10 Ω**

5. Test for greater than 50k Ω between the signal circuit terminal 1 and ground.

⇒ **If 50k Ω or less**

5.1. Test the following circuits for a short to ground.

- DTC B17F0 = Circuit 6622
- DTC B17F2 = Circuit 6626

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K36 Restraints Control Module.

⇓ **If greater than 50k Ω**

6. Ignition OFF.
7. Verify the SIR system is disabled.
8. Test for less than 1 V between the signal circuit terminal 1 and ground.

⇒ **If 1 V or greater**

8.1. Ignition OFF..

8.2. Verify the SIR system is disabled.

8.3. Disconnect the harness connector at the K36 Restraints Control Module, ignition ON

8.4. Test between the following circuits for short to voltage:

- DTC B17F0 = Circuit 6622, and Circuit 6623
- DTC B17F2 = Circuit 6626, and Circuit 6627

⇒ If greater than 1 V, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K36 Restraints Control Module.

⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.

9. Ignition ON, Vehicle in service mode.
10. Install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V. Ignition ON.
11. Verify the MAX voltage captured by the DMM is between 4–9V.

⇒ **If less than 4 V**

11.1. Ignition OFF.

11.2. Verify the SIR system is disabled.

11.3. Disconnect the X2 harness connector at the K36 Restraints Control Module.

11.4. Test between the following circuits for short to ground:

- DTC B17F0 = Circuit 6622, and Circuit 6623
- DTC B17F2 = Circuit 6626, and Circuit 6627

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

11.5. Test the following circuits for open/high resistance:

- DTC B17F0 = Circuit 6622
- DTC B17F2 = Circuit 6626

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω, replace the Restraints Control Module.

⇒ **If greater than 9V**

11.1. Ignition OFF.

11.2. Verify the SIR system is disabled.

11.3. Disconnect the X2 harness connector at the K36 Restraints Control Module. Ignition ON.

11.4. Test for short to voltage between ground and the following circuits:

- DTC B17F0 = Circuit 6622
- DTC B17F2 = Circuit 6626

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K36 Restraints Control Module.

⇓ **If between 4–9V**

12. Ignition OFF
13. Verify the SIR system is disabled.
14. Connect all harness connectors, press in the CPA (if equipped) until an audible and/or tactile click is heard.
15. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
16. Verify DTC B17F2 or B17F0 does not set.

⇒ **If the DTC sets**

16.1. Replace the B63 Side Impact Sensor

16.2. Verify the DTC does not set.

⇒ If the DTC sets, replace the K36 Restraints Control Module.

⇓ If the DTC does not set.

16.3. All OK.

⇓ **If the DTC does not set**

17. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- *Airbag Side Impact Rear Sensor Replacement (Double Cab) on page 8-578* or *Airbag Side Impact Rear Sensor Replacement (Crew Cab) on page 8-584* or *Airbag Side Impact Rear Sensor Replacement on page 8-590*
- Control Module References for Restraints Control Module replacement, programming, and setup

DTC B1A33

Object-ID=5197566 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

B1A33: Deployment Commanded Circuit

Symptom Byte Information: Symptom Byte List.

Circuit/System Description

Component	Description
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

- Ignition = On
- Ignition Voltage = 9 to 16 V

Conditions for Setting the DTC

Deployment Commanded

Actions Taken When the DTC Sets

Airbag Indicator= On

Conditions for Clearing the DTC

Use a scan tool.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.

1. Ignition » On / Vehicle » In Service Mode
2. Refer to: *Repairs and Inspections Required After a Collision on page 8-655*
3. Clear DTCs — Use a scan tool.
4. Verify DTC B1A33 is not set.

⇒ **If the DTC B1A33 is set.**

Replace the component: K36 Restraints Control Module

⇓ **If the DTC is not set**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

For control module replacement, programming, and setup refer to: Control Module Reference

DTC B1A34

Object-ID=5198125 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptor

B1A34: Restraint End of Life Deployment Commanded

Symptom Byte Information: Symptom Byte List

Circuit/System Description

Component	Description
K36 Restraints Control Module	The Restraints Control Module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain Airbags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

- Ignition = On
- Ignition Voltage = 9 to 16 V

Conditions for Setting the DTC

Deployment Commanded

Actions Taken When the DTC Sets

Airbag Indicator= On

Conditions for Clearing the DTC

Use a scan tool.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note:

- Refer to *SIR Service Precautions on page 8-483*.
- Refer to *SIR Disabling and Enabling on page 8-481*.

1. Ignition » On / Vehicle » In Service Mode
2. Refer to: *Repairs and Inspections Required After a Collision on page 8-655*
3. Clear DTCs — Use a scan tool.
4. Verify DTC B1A34 is not set.

⇒ **If the DTC B1A34 is set.**

Replace the component: K36 Restraints Control Module

⇓ **If the DTC is not set**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

For control module replacement, programming, and setup refer to: Control Module References

DTC B1A35

Object-ID=5198222 Owner=Bunker, Timothy LMD=28-Feb-2023 LMB=Bunker, Timothy

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1A35: Automatic Occupant Sensing Module

Circuit/System Description

When the ignition is turned ON, the K85P Restraints Occupant Classification Module performs self tests to diagnose critical malfunctions. If the K85P Restraints Occupant Classification Module detects a fault within the Occupant Classification system, the K85P Restraints Occupant Classification Module will notify the K36 Restraints Control Module via serial data of the fault status. When the K36 Restraints Control Module is notified of a fault in the K85P Restraints Occupant Classification System Module, the K36 Restraints Control Module will set DTC B1A35 and illuminate the AIRBAG indicator.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

Any of the following conditions must exist

B1A35 00

The K85P Restraints Occupant Classification System Module is currently reporting a fault present message to the K36 Restraints Control Module.

Action Taken When the DTC Sets

- The K36 Restraints Control Module requests the instrument cluster to illuminate the AIRBAG indicator.
- The passenger instrument panel airbag and passenger knee airbag deployment loops may have reduced performance or be disabled.
- The passenger Seat Belt Reminder function may be disabled.

Conditions for Clearing the DTC

- The K85P Restraints Occupant Classification System Module is no longer reporting a fault present message to the K36 Restraints Control Module.
- The condition for setting the DTC in the K85P Restraints Occupant Classification Module no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aids

- This DTC only indicated that there is a current fault in the K85P Restraints Occupant Classification System. Never replace the SDM if this DTC is set. Diagnose the K85P Restraints Occupant Classification System to determine why it is reporting a fault to the K36 Restraints Control Module.

Reference Information

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note:

- Perform a Restraints Occupant Classification System Module Programming and Setup procedure whenever the seat trim is removed or the component is replaced.

1. Verify that DTC B1A35 is not set in the K36 Restraints Control Module.

⇒ **If other DTCs are set in the K36 Restraints Control Module**

⇓ **If no other DTCs are set in the K36 Restraints Control Module**

2. Diagnose and Repair the cause of DTCs within the K85P Restraints Occupant Classification System. Do not replace K36 Restraints Control Module if this DTC is current.
3. Perform all necessary programming and setup procedures for the K85P Restraints Occupant Classification System Module - Passenger.
4. Verify no other DTCs related to the K36 Restraints Control Module are set.

⇒ **If the DTC still sets**

4.1. Replace the K85P Restraints Occupant Classification System Module - Passenger.

4.2. Verify the DTC does not set.

⇓ If the DTC does not set.

4.3. All OK.

⇓ **If the DTC does not set**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

K85P Restraints Occupant Classification System Module - Passenger: Programming and Setup for Restraints Occupant Classification Module/sensor setup

Airbag Front Passenger Presence Module Replacement on page 8-539 for Restraints Occupant Classification Module replacement

DTC B1A7A

Object-ID=5198260 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B1A7A: Automatic Occupant Sensing Display

Circuit/System Description

When the ignition is turned ON, the K36 Restraints Control Module and the K85P Restraints Occupant Classification System Module perform tests to diagnose critical malfunctions. Upon a successful power-up mode the Restraints Control Module will illuminate both PASSENGER AIRBAG ON/OFF indicators located in the A103 Roof Console. If the Restraints Control Module detects a fault in the Restraints Occupant Classification System Module, it may disable the front passenger Airbag deployment loop, set DTC B1A7A and illuminate the AIRBAG indicator.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

Any of the following conditions must exist for 5 s

B1A7A 00

The Restraints Occupant Classification System Module Programming and Setup procedure has not been attempted/performed.

Action Taken When the DTC Sets

- The Restraints Control Module requests the instrument cluster to illuminate the AIRBAG indicator.
- The passenger instrument panel Airbag deployment loop will be disabled.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aids

- If the Restraints Control Module or Body Control Module were replaced verify that the correct part numbers were used for the vehicle application.

Reference Information

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Note: The Restraints Control Module sets a DTC B1A7A when a communication or internal fault from the A103 Roof Console is detected.

1. Verify that U0100 — U02FF codes are not present.
   - ⇒ If U0100 — U02FF codes are present, diagnose before continuing
2. Verify that DTC B1A7A is not set in the K36 Restraints Control Module.

⇒ **If DTC B1A7A is set in the K36 Restraints Control Module**

Conduct circuit system testing for short to ground, B+ and Open circuit before replacing A103 Roof Console

⇓ **If DTC B1A7A is not set in the K36 Restraints Control Module**

3. A fault is not currently present and may be an intermittent condition.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for passenger presence system replacement, programming and setup

For wiring repair refer to: Wiring Repairs

DTC C006A

Object-ID=5609972 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

Circuit/System Description

The Yaw Rate Sensor built into the K36 Restraints Control Module identifies the transverse (lateral) and longitudinal acceleration of the vehicle and the yaw rate via the yaw rate sensor signal, to judge the vehicle operation condition and perform body ESC correspondingly.

DTC Descriptor

DTC C006A 92: Failed Calibration or No Calibration for End of Line of Yaw Rate Sensor

Conditions for Running the DTC

- Ignition ON.
- Ignition voltage within 9V-16V

Conditions for Setting the DTC

Sensor calibration failed or invalid

Action Taken When the DTC Sets

- C006A92 saved in iRBC; ESC,TCS and CBD invalid

Conditions for Clearing the DTC

- The fault enters the historical state and the MIL is in the OFF state after the condition for setting the DTC is no longer present.
- One order to clear the DTC sent by the diagnostic tool is received.
- The next ignition MIL goes out after the fault is removed.

Reference Information

Connector End View Reference

Component Connector End Views on page 7-58

Description and Operation

Supplemental Inflatable Restraint System Description and Operation on page 8-680

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Diagnostic Equipment References

Refer toControl Module References for diagnostic equipment information.

Circuit/System Testing

1. Confirm that DTC C006A is a current DTC
2. Confirm that DTC U3000 with failure type byte 55 or 56 is present
3. Replace the K36 Restraints Control Module

Repair Instructions

- Perform the Diagnostic Repair Verification after completing the repair.
- Control Module References for Restraints Control Module replacement, programming, and setup

Symptoms - SIR

Object-ID=5123697 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Note: The following steps must be completed before using the symptom tables.

1. Perform the Diagnostic System Check - Vehicle before using the Symptom Tables in order to verify that all of the following are true:
    - There are no DTCs set.
    - The control module(s) can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to *Supplemental Inflatable Restraint System Description and Operation on page 8-680*.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the SIR System.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

Airbag Indicator Malfunction - Driver on page 8-480

Airbag Indicator Malfunction - Passenger on page 8-481

Airbag Indicator Malfunction - Driver

Object-ID=5324777 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Component	Description
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition » On / Vehicle » In Service Mode
2. Verify the condition does not exist: Airbag Indicator= Flashing

⇒ **If the condition exists**

Refer to: K36 Restraints Control Module: Programming and Setup

⇓ **If no condition exists**

3. Verify there are no DTCs set related to the following component/system: K36 Restraints Control Module

⇒ **If a related DTC is set**

Refer to: Diagnostic Trouble Code (DTC) List - Vehicle

⇓ **If a related DTC is not set**

4. Perform the appropriate scan tool control function: All Indicators @ P16 Instrument Panel Cluster Control Module» On and Off

Verify the component activates: Airbag Indicator= On and Off

⇒ **If the component does not work as specified**

Replace the component: P16 Instrument Panel Cluster Control Module

⇓ **If the component works as specified**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for Restraints Control Module replacement, programming, and setup

Airbag Indicator Malfunction - Passenger

Object-ID=5343475 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

Circuit/System Description

For an overview of the component/system, refer to: *Supplemental Inflatable Restraint System Description and Operation on page 8-680*

Component	Description
A103 Roof Console	Some buttons and indicators are hardwired, some functions use serial data communication.
K36 Restraints Control Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain airbags and seat belt pretensioners, depending on the angle and severity of the impact.

Reference Information

Schematic Reference

SIR Schematics on page 8-433

Connector End View Reference

Master Electrical Component List on page 7-853

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition On / Vehicle in Service Mode
2. Verify the condition does not exist / Airbag Indicator flashing

⇒ **If the condition exists**

Refer to: K36 Restraints Control Module: Programming and Setup

⇓ **If no condition exists**

3. Verify there are no DTCs set related to the following system/component K36 Restraints Control Module

⇒ **If a related DTC is set**

Refer to: Diagnostic Trouble Code (DTC) List - Vehicl

⇓ **If a related DTC is not set**

4. Cycle ignition OFF, then ON, Vehicle in service mode.

   Verify the Passenger Airbag indicator On and Off both illuminate for 5 seconds.

⇒ **If passenger airbag indicators do not Illuminate**

Replace the component: A103 Roof Console.

⇓ **If the passenger airbag indicators illuminate**

5. All OK

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Roof Console Replacement
- Control Module References for Restraints Control Module replacement, programming, and setup

SIR Disabling and Enabling

Object-ID=5442534 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Warning: SIO-ID=2050178 LMD=21-Jan-2008 ***When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Failure to observe the correct procedure could cause deployment of the SIR components. Serious injury can occur. Failure to observe the correct procedure could also result in unnecessary SIR system repairs.***

SIR component location affects how a vehicle should be serviced. There are parts of the SIR system installed in various locations around a vehicle. For the location of the SIR components, refer to *Master Electrical Component List on page 7-853*.

There are several reasons for disabling the SIR system, such as repairs to the SIR system or servicing a component near or attached to an SIR component. There are several ways to disable the SIR system depending on what type of service is being performed. The following information covers the proper procedures for disabling/enabling the SIR system.

If the vehicle was involved in a collision, refer to *Repairs and Inspections Required After a Collision on page 8-655*

Condition	Action
Performing diagnosis or repairs on or near SIR components. Examples but not limited to the following: Floor/Center console, steering wheel, dash components, seats, floor shifters, HVAC case, doors, door strikers, carpet replacement, etc Refer to: *Master Electrical Component List on page 7-853*	Disconnect the negative battery cable*
Performing electrical diagnosis on components other than the SIR system	Remove the SIR/Airbag fuse(s) when indicated by the diagnostic procedure to disable the SIR system
Vehicle was involved in an accident with an airbag deployment	Disconnect the negative battery cable*
Performing SIR diagnostics	Follow the appropriate SIR service manual diagnostic procedure(s)*
Removing or replacing an SIR component or a component attached to an SIR component	Disconnect the negative battery cable*
The vehicle is suspected of having shorted electrical wires	Disconnect the negative battery cable*
* DTCs will be lost when the negative battery cable is disconnected.	

SIR Service Precautions

Warning: SIO-ID=2051386 LMD=23-Jan-2008 ***Do not strike or jolt the inflatable restraint sensing and diagnostic module (SDM). Before applying power to the SDM, make sure that it is securely fastened with the arrow facing toward the front of the vehicle. Failure to observe the correct installation procedure could cause SIR deployment, personal injury, or unnecessary SIR system repairs.***

Warning: SIO-ID=2050178 LMD=21-Jan-2008 ***When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Failure to observe the correct procedure could cause deployment of the SIR components. Serious injury can occur. Failure to observe the correct procedure could also result in unnecessary SIR system repairs.***

The Restraints Control Module (RCM) maintains a reserved energy supply. The reserved energy supply provides deployment power for the airbags if the Restraints Control Module loses battery power during a collision. Deployment power is available for as much as 2 minutes after disconnecting the vehicle power. Wait 2 minutes before working on the system after disabling the SIR system to prevent deployment of the airbags from the reserved energy supply.

General Service Instructions

The following are general service instructions which must be followed in order to properly repair the vehicle and return it to its original integrity:

- Do not expose airbags to temperatures above 85 °C (185 °F).
- Verify the correct replacement part number. Do not substitute a component from a different vehicle.
- Use only original GM replacement parts available from your authorized GM dealer. Do not use salvaged parts for repairs to the SIR system.

Discard any of the following components if it has been dropped from a height of 80 cm (31.5 in) or greater:

- Restraints Control Module
- Restraint Occupant Classifcation System
- Airbag
- Driver steering wheel airbag coil
- Seat belt pretensioner
- Impact sensor

Disabling Procedure – Airbag Fuse

1. Turn the steering wheel so that the vehicles wheels are pointing straight ahead.
2. Vehicle OFF.

Warning: SIO-ID=2666406 LMD=31-May-2011 ***The SDM may have more than one fused power input. To ensure there is no unwanted SIR deployment, personal injury, or unnecessary SIR system repairs, remove all fuses supplying power to the SDM. With all SDM fuses removed and the ignition switch in the ON position, the AIR BAG warning indicator illuminates. This is normal operation, and does not indicate a SIR system malfunction.***

3. Locate and remove the fuse(s) supplying power to the Restraints Control Module. Refer to SIR Schematics on page 8-433.
4. Wait 2 minutes before working on the system.

Enabling Procedure – Airbag Fuse

1. Vehicle OFF.
2. Install the fuse(s) supplying power to the Restraints Control Module. Refer to SIR Schematics on page 8-433
3. Vehicle in Service Mode. The Airbag indicator will cycle ON then cycle OFF.
4. Perform the Diagnostic System Check – Vehicle if the Airbag warning indicator does not operate as described.

Disabling Procedure – Negative Battery Cable

1. Turn the steering wheel so that the vehicles wheels are pointing straight ahead.
2. Vehicle OFF.
3. Disconnect the negative battery cable from the battery.
4. Wait 2 minutes before working on system.

Enabling Procedure – Negative Battery Cable

1. Vehicle OFF.
2. Connect the negative battery cable to the battery.
3. Vehicle in Service Mode. The Airbag indicator will cycle ON then cycle OFF.
4. Perform the Diagnostic System Check – Vehicle if the Airbag warning indicator does not operate as described.

Repair Instructions

SIR Service Precautions

Object-ID=5344029 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Warning: SIO-ID=4808929 LMD=11-Feb-2019 ***If a service procedure indicates that a module is to be replaced, a new production unit MUST be ordered from the GM Parts Catalog or certified supplier. Using a module that has been reset by a 3rd party company is strictly prohibited. Not using a new production unit may result in improper performance of the safety system in the event of an accident, which may result in bodily injury.***

Warning: SIO-ID=2052947 LMD=24-Jan-2008 ***When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Refer to SIR Disabling and Enabling . Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.***

Warning: SIO-ID=2051386 LMD=23-Jan-2008 ***Do not strike or jolt the inflatable restraint sensing and diagnostic module (SDM). Before applying power to the SDM, make sure that it is securely fastened with the arrow facing toward the front of the vehicle. Failure to observe the correct installation procedure could cause SIR deployment, personal injury, or unnecessary SIR system repairs.***

General Service Instructions

Note: The Restraints Control Module (RCM) maintains a reserved energy supply. The reserved energy supply provides deployment power for the SIR air bags. Deployment power may be available for up to 2 minutes after disconnecting the vehicle power. Disabling the SIR system prevents deployment of the SIR air bags from the reserved energy supply.

Note: The following are general service instructions which must be followed in order to properly repair the vehicle and return it to its original integrity:

- Do not expose air bags to temperatures above 85 °C (185 °F)
- Verify the correct replacement part number. Do not substitute a component from a different vehicle.
- Use only original GM replacement parts available from your authorized GM dealer. Do not use salvaged parts for repairs to the SIR system

Note: Discard any of the following components if it has been dropped from a height of 80 cm (31.5 in) or greater:

- Restraints Control Module
- Restraint Occupant Classification System
- Airbag
- Driver steering wheel airbag coil
- Seat belt pretensioner
- Impact sensor

Airbag Front End Discriminating Sensor Replacement

Object-ID=6193189 Owner=Cameli, Jordan LMD=10-Nov-2022 LMB=Schaller, Dawn

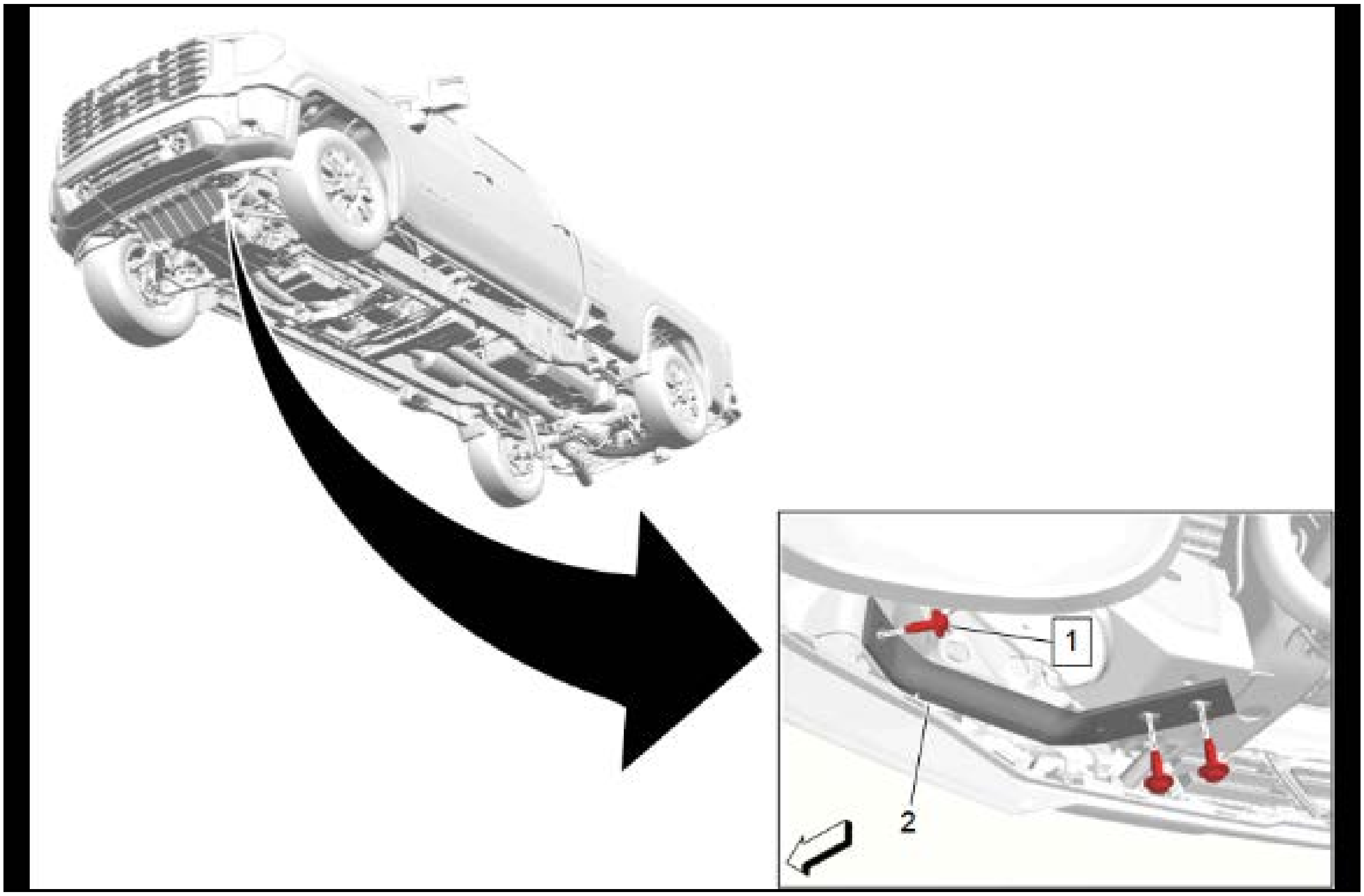
Warning: SIO-ID=2052249 LMD=24-Jan-2008 ***Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:***

- ***The seat cushion frame***
- ***The seat recliner, if equipped***
- ***The seat adjuster***
- ***The seat back frame***

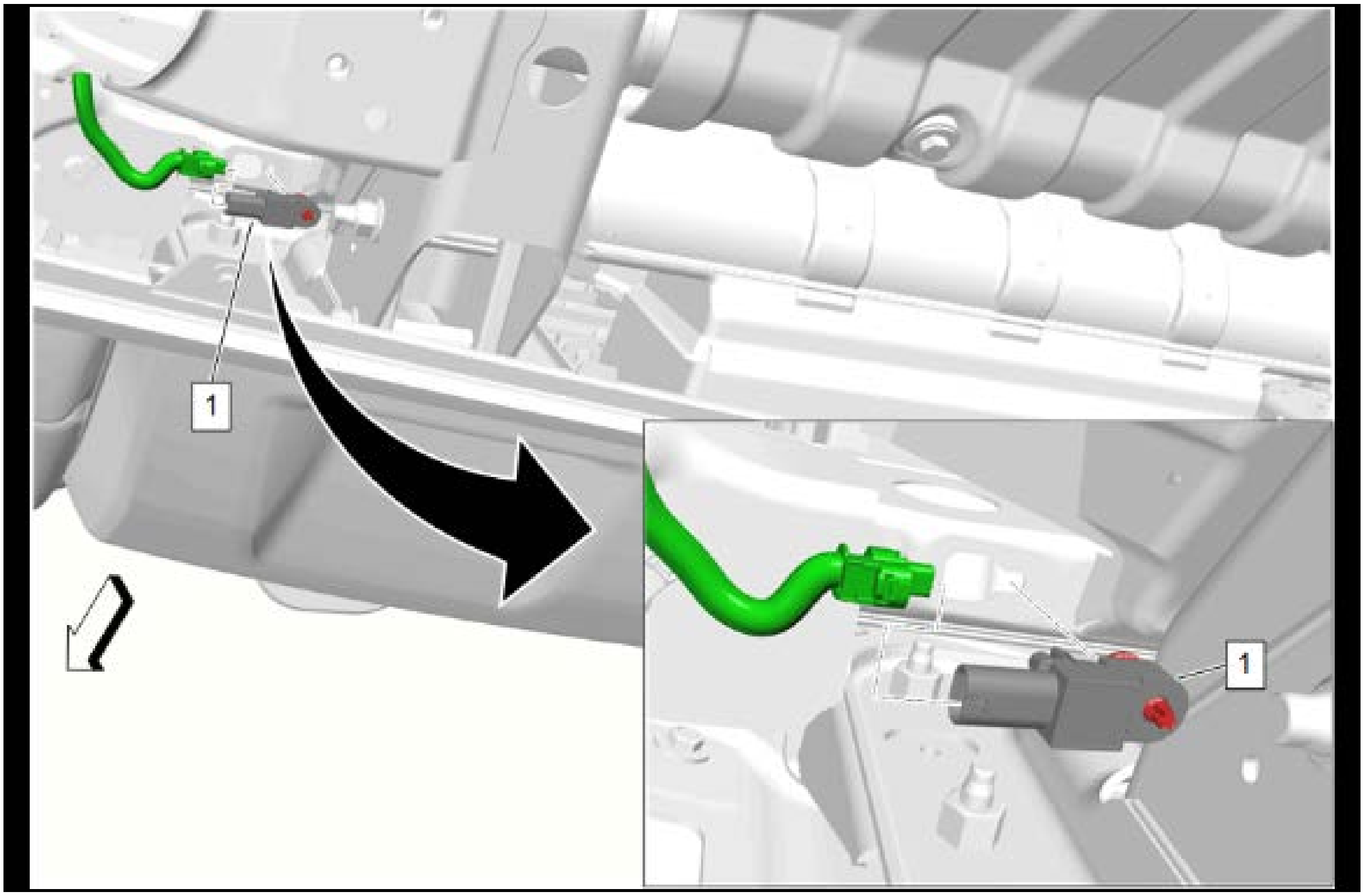
Failure to do so may cause future personal injury.

Removal Procedure

1. Disable the SIR system. — SIR Disabling and Enabling on page 8-481
2. Remove the tire and wheel assembly.



3. Front Bumper Impact Bar Brace Bolt (1) » Remove [3x]
4. Front Bumper Fascia Support Brace (2) » Remove

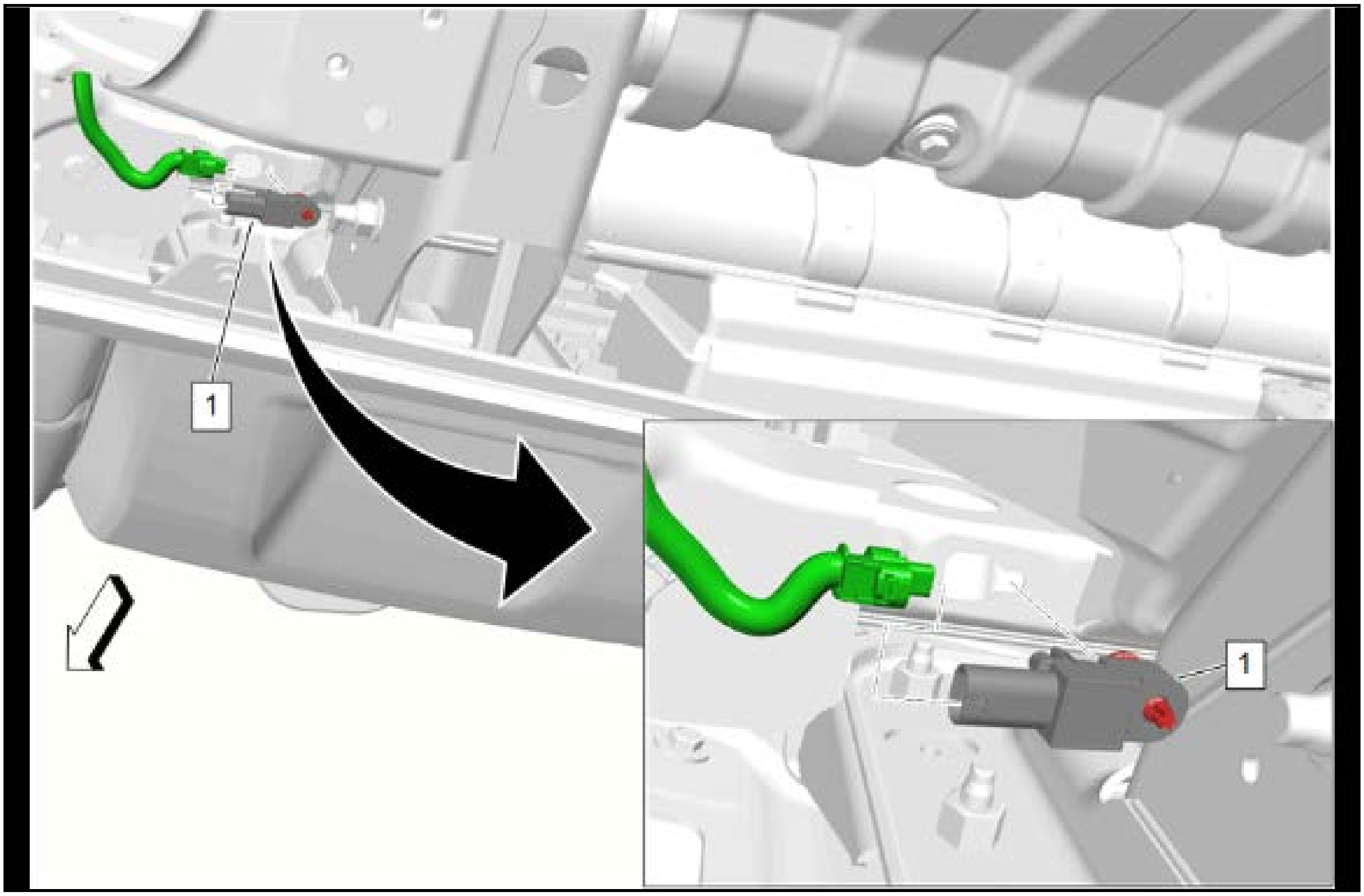


Note:

- Integral sensor assembly bolt uses Left Hand threads. Use counterclockwise rotation to loosen fastener at TORX® tip end. If accessing at pan head end of the fastener, use clockwise rotation to loosen bolt.
- The bolts are integral to the sensor, DO NOT remove separately.

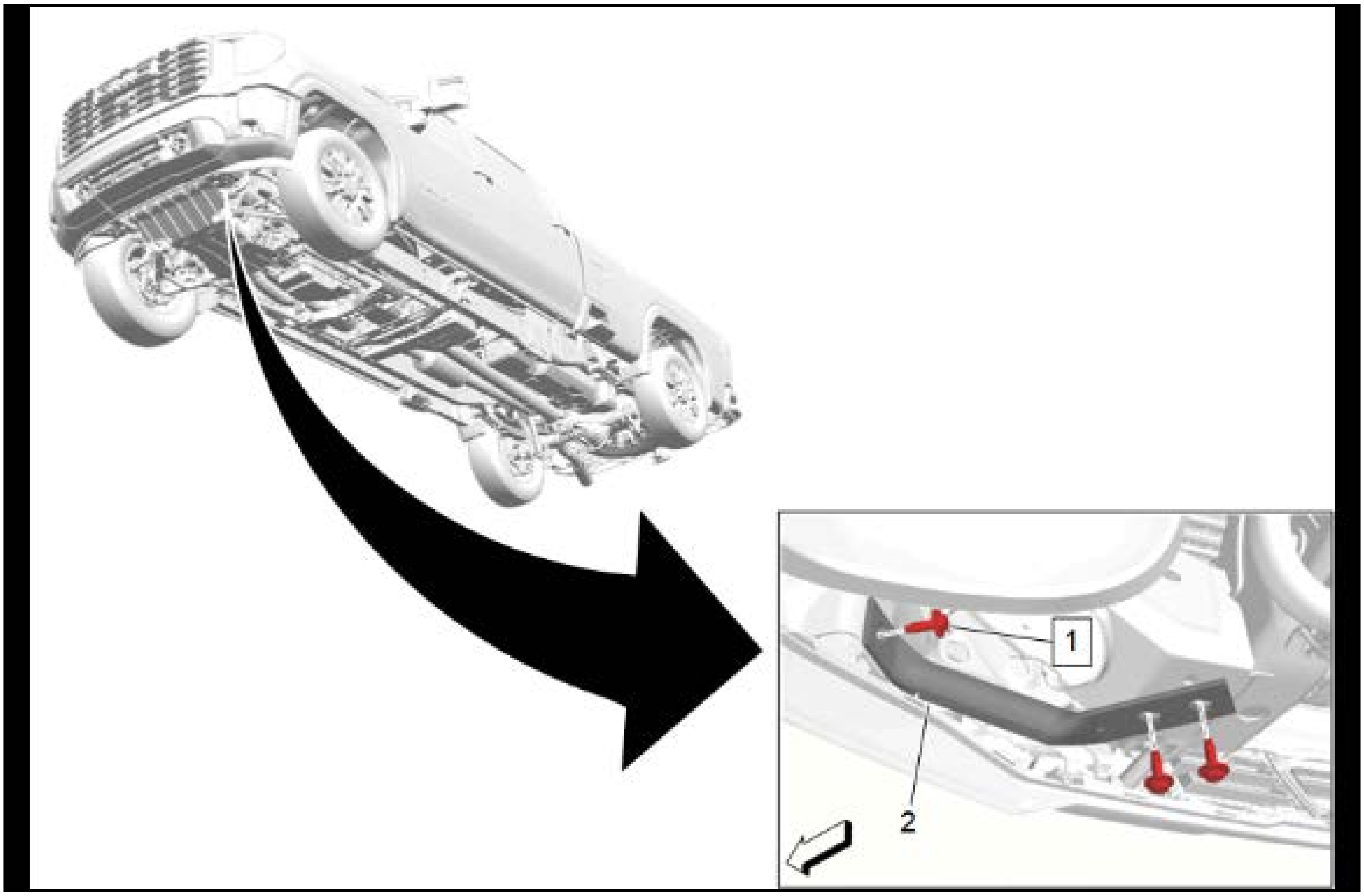
5. Loosen the fastener and slide the sensor out of the keyhole slot.
6. Disconnect the electrical connector.
7. Airbag Front End Discriminating Sensor (1) » Remove

Installation Procedure



6193027

1. Connect the electrical connector.
2. Slide the integral bolt into the narrow portion of the keyhole slot until the integral tab is fully seated into wide portion of the keyhole slot before securing.
3. Airbag Front End Discriminating Sensor (1) » Install and tighten — *Fastener Specifications on page 8-427*



6193031

4. Front Bumper Fascia Support Brace (2) » Install
5. Front Bumper Impact Bar Brace Bolt (1) » Install and tighten [3x]
6. Install the tire and wheel assembly.
7. Enable the SIR System. — SIR Disabling and Enabling on page 8-481

Airbag Side Impact Sensor Replacement

Object-ID=5627116 Owner=Schaller, Dawn LMD=27-Jul-2020 LMB=McMillan, Tim

Warning: SIO-ID=2052249 LMD=24-Jan-2008 ***Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:***

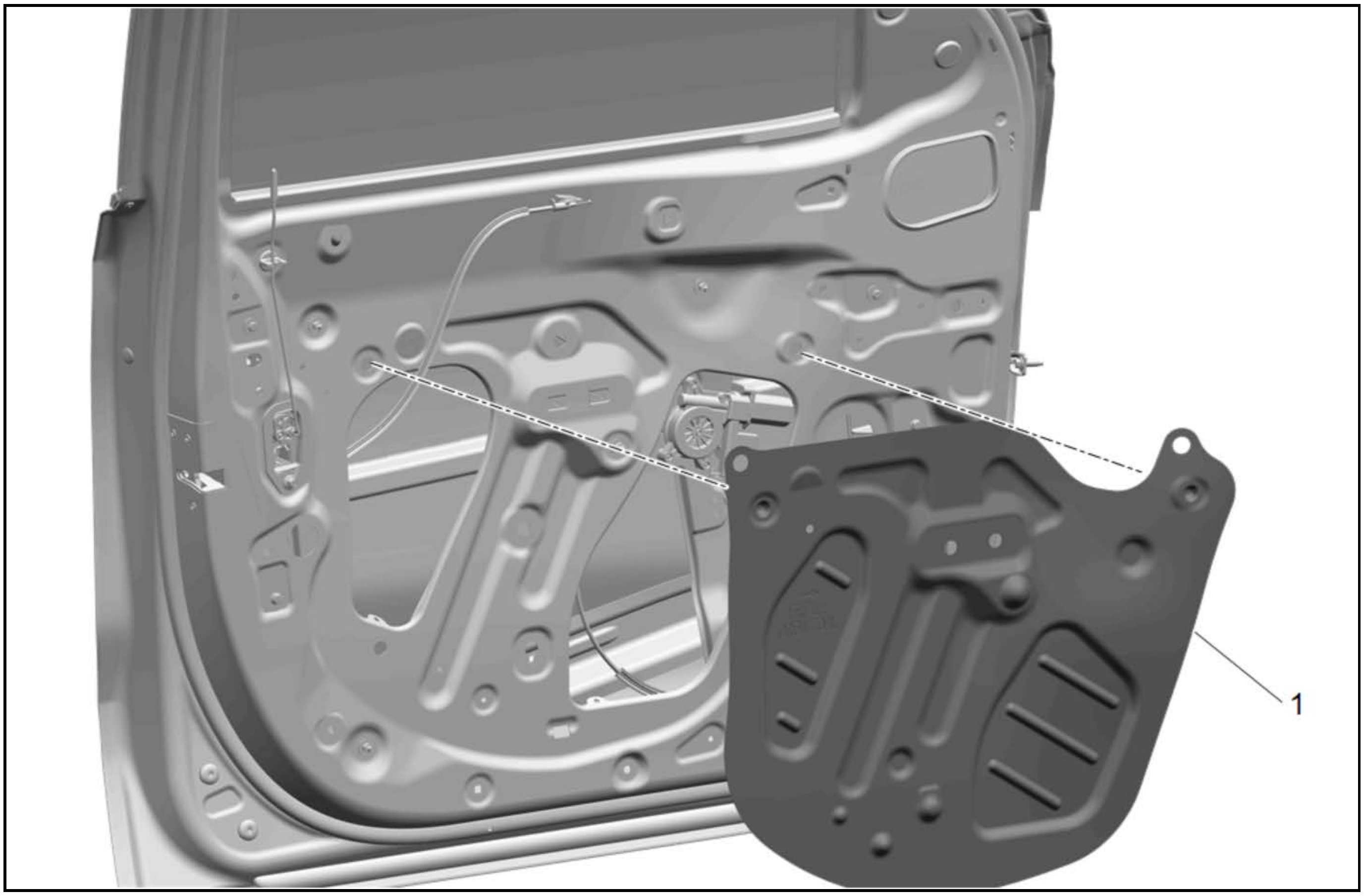
- ***The seat cushion frame***
- ***The seat recliner, if equipped***
- ***The seat adjuster***
- ***The seat back frame***

Failure to do so may cause future personal injury.

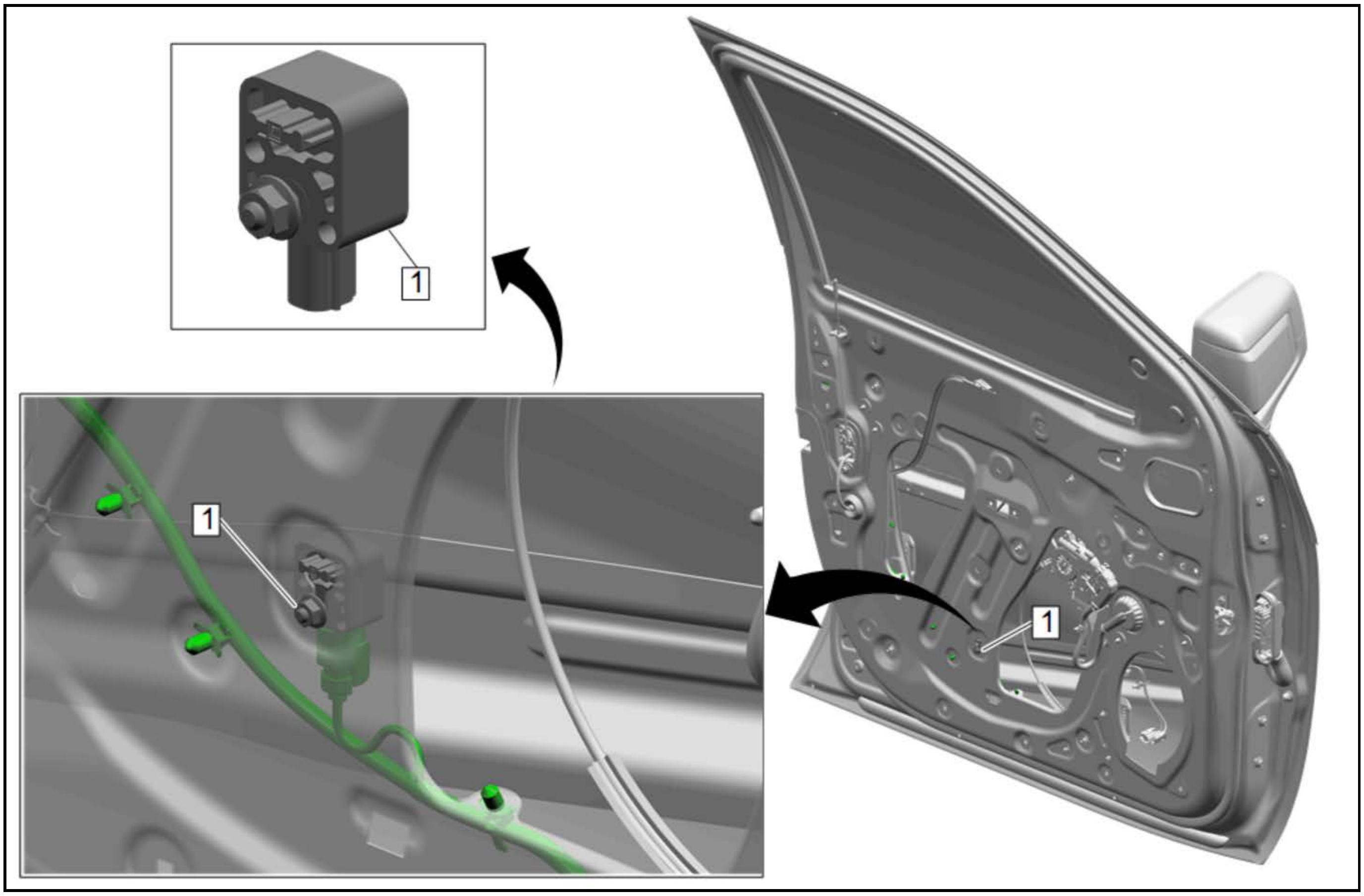
Warning: SIO-ID=4917656 LMD=11-Feb-2019 ***When installing the water deflector, ensure that the water deflector is securely fastened to the door inner before installing the door trim. An improper seal of the water deflector against the door inner may affect the ability of the front door pressure sensor to detect a side collision. This may result in improper airbag deployment and could cause bodily injury.***

Removal Procedure

1. Disable the SIR system. SIR Disabling and Enabling on page 8-481
2. Front Side Door Trim » Remove



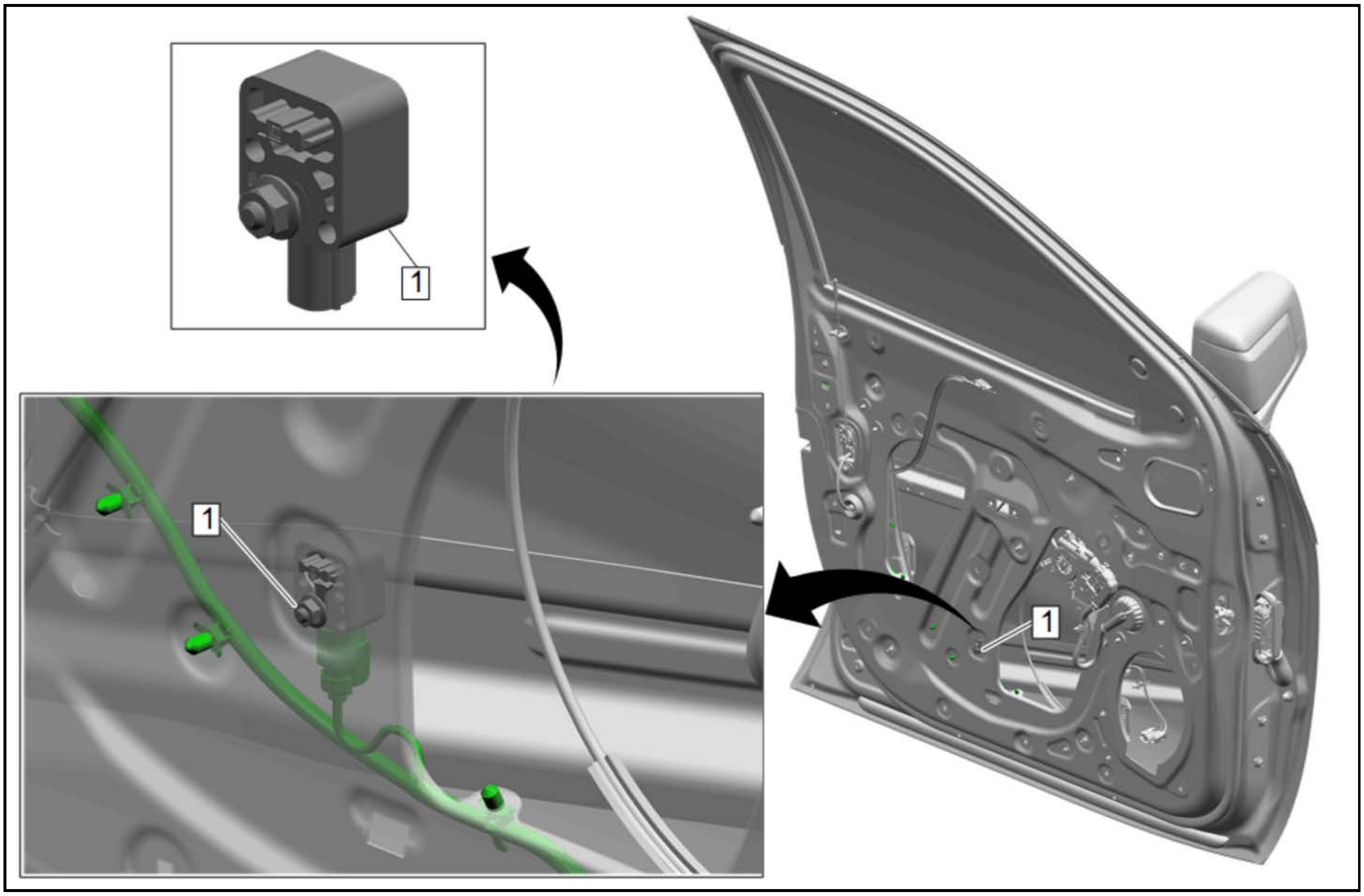
3. Route front side door inside handle cable through hole in deflector (1).
4. Front Side Door Water Deflector (1) » Remove



Note: The nut is integral to the sensor, Do NOT remove separately.

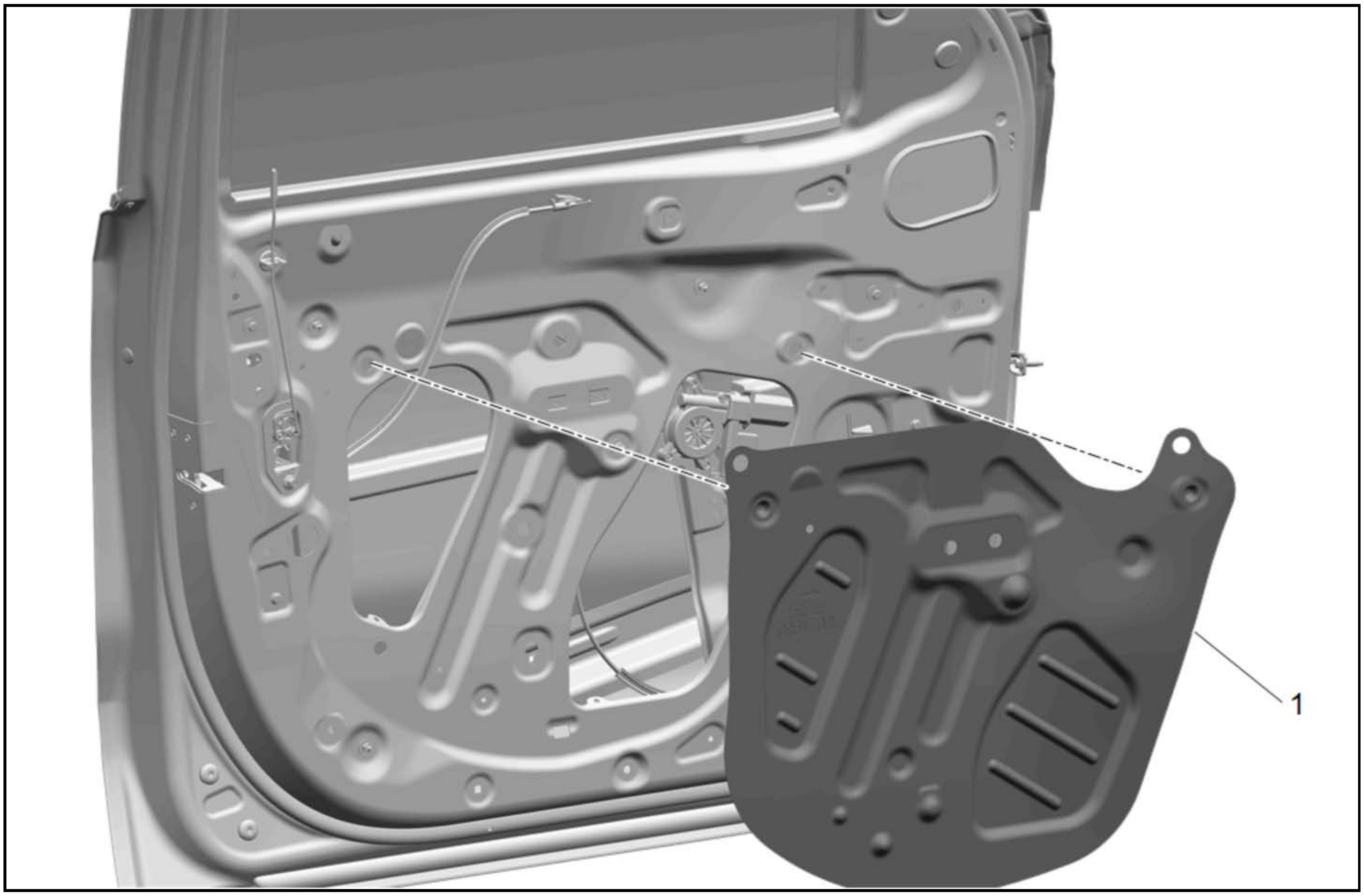
5. Loosen the fastener and slide the sensor out of the keyhole slot.
6. Disconnect the electrical connector.
7. Airbag Side Impact Sensor (1) » Remove

Installation Procedure



5019522

1. Connect the electrical connector.
2. Slide the sensor into the keyhole slot.
3. Airbag Side Impact Sensor (1) » Install and tighten — *Fastener Specifications on page 8-427*



4998189

4. Route front side door inside handle cable through hole in deflector.
5. Front Side Door Water Deflector (1) » Install
6. Front Side Door Trim » Install
7. Enable the SIR System. SIR Disabling and Enabling on page 8-481.

Airbag Side Impact Sensor Replacement

Object-ID=5906770 Owner=Cameli, Jordan LMD=07-Oct-2021 LMB=Schaller, Dawn

Warning: SIO-ID=2052249 LMD=24-Jan-2008 ***Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:***

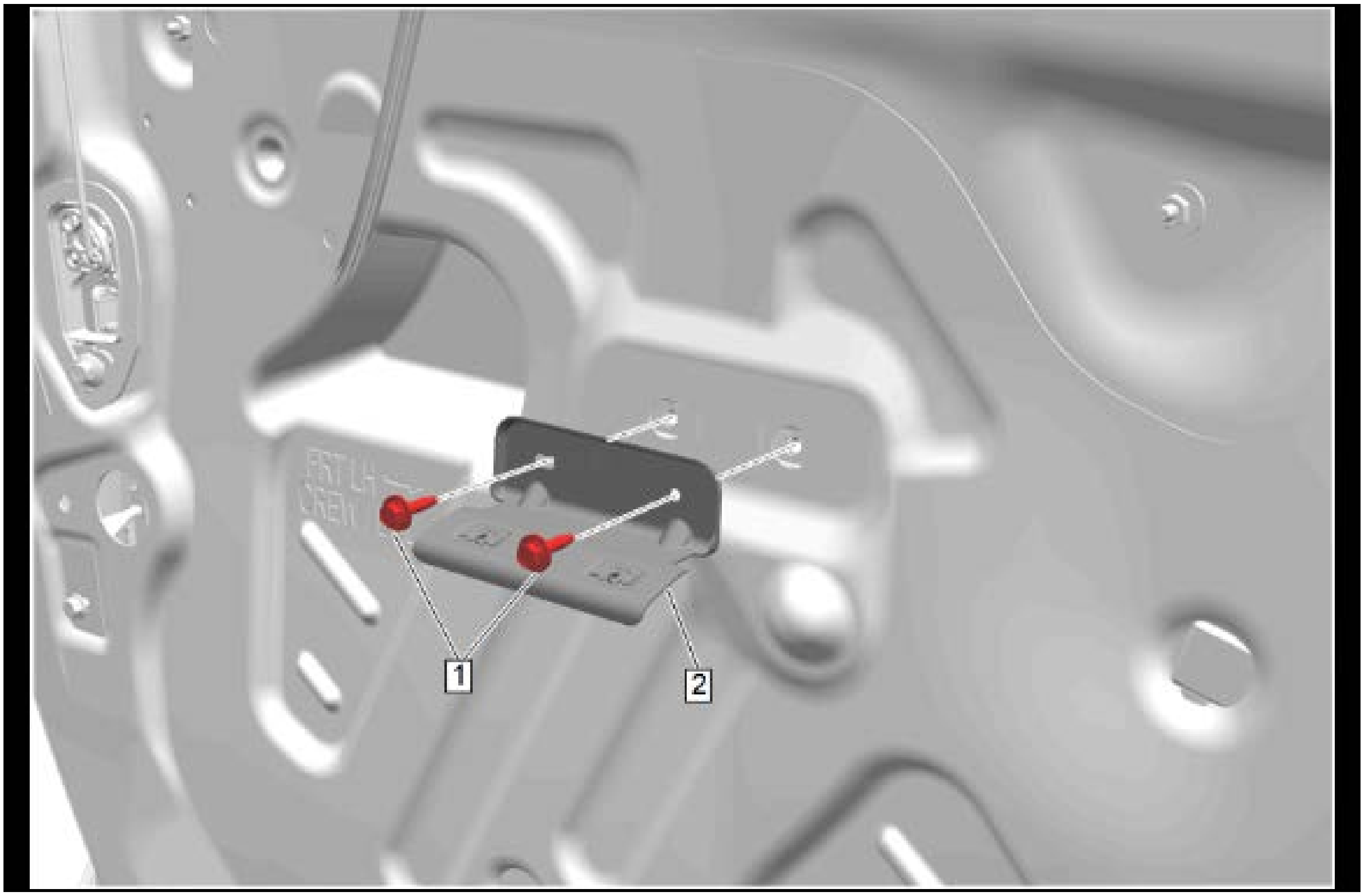
- ***The seat cushion frame***
- ***The seat recliner, if equipped***
- ***The seat adjuster***
- ***The seat back frame***

Failure to do so may cause future personal injury.

Warning: SIO-ID=4917656 LMD=11-Feb-2019 ***When installing the water deflector, ensure that the water deflector is securely fastened to the door inner before installing the door trim. An improper seal of the water deflector against the door inner may affect the ability of the front door pressure sensor to detect a side collision. This may result in improper airbag deployment and could cause bodily injury.***

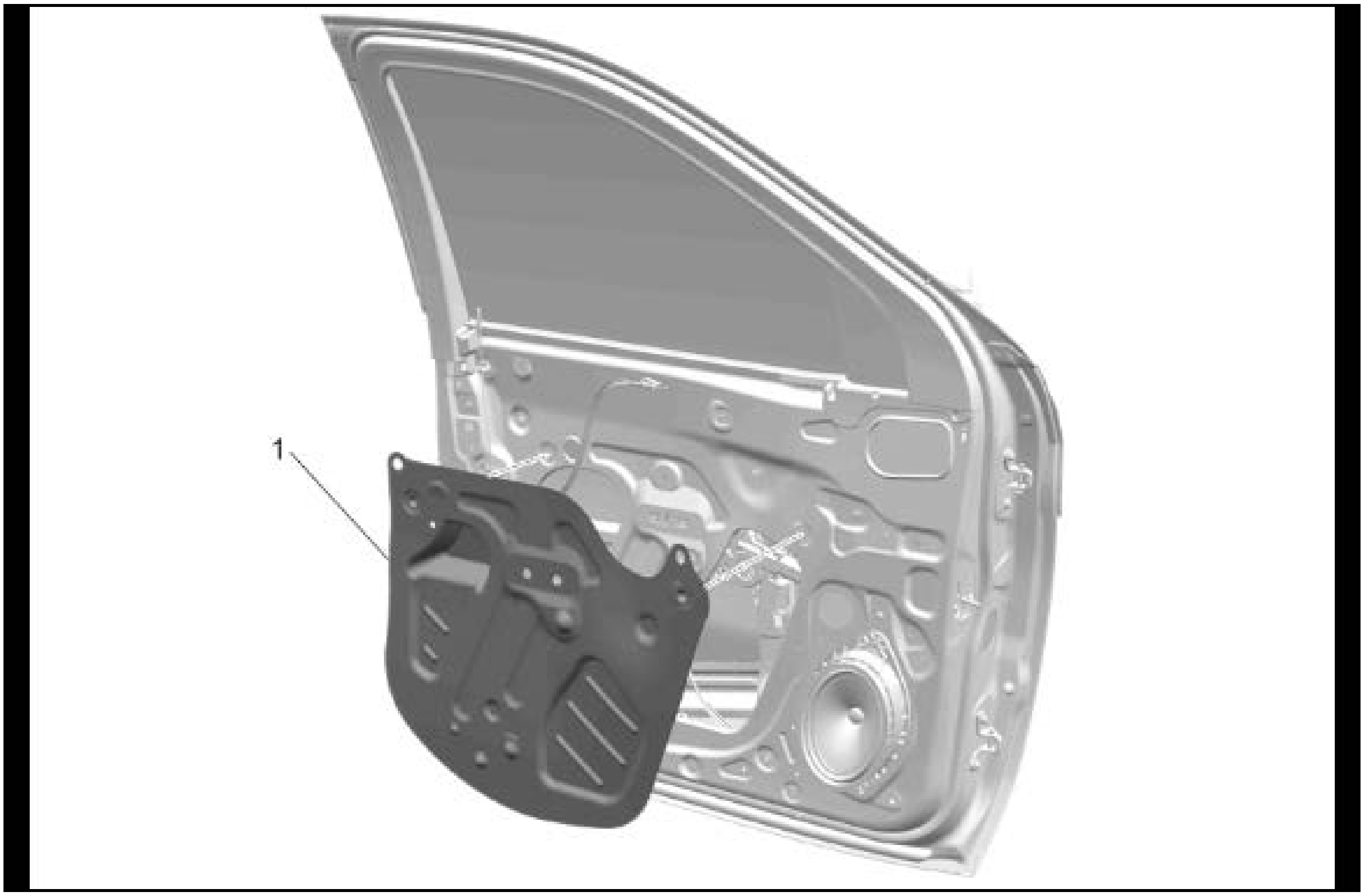
Removal Procedure

1. Disable the SIR system. SIR Disabling and Enabling on page 8-481
2. Front Side Door Trim » Remove



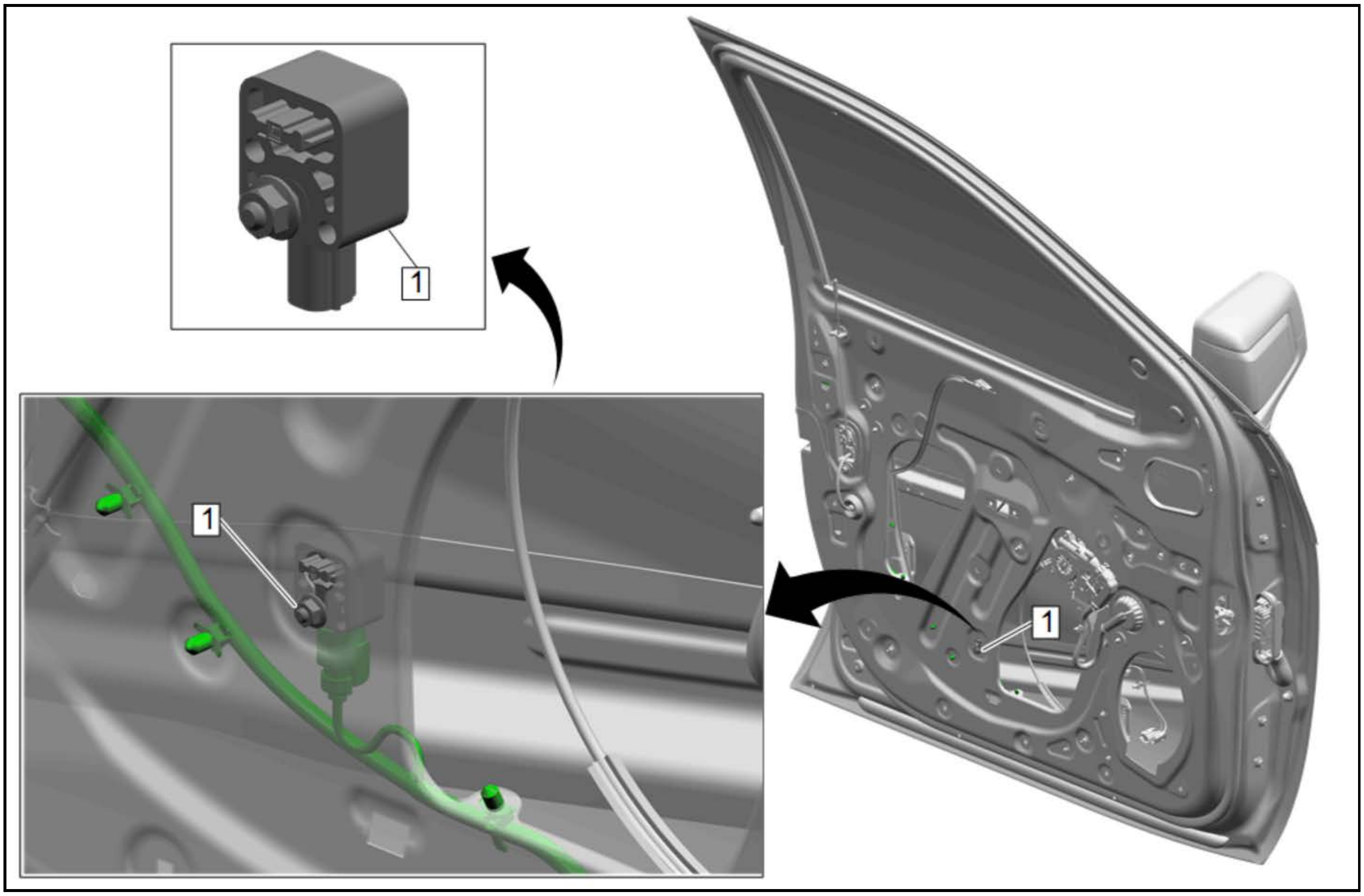
5904671

3. Front Side Door Armrest Bracket Bolt (1) » Remove [2x]
4. Front Side Door Armrest Bracket (2) » Remove



5904694

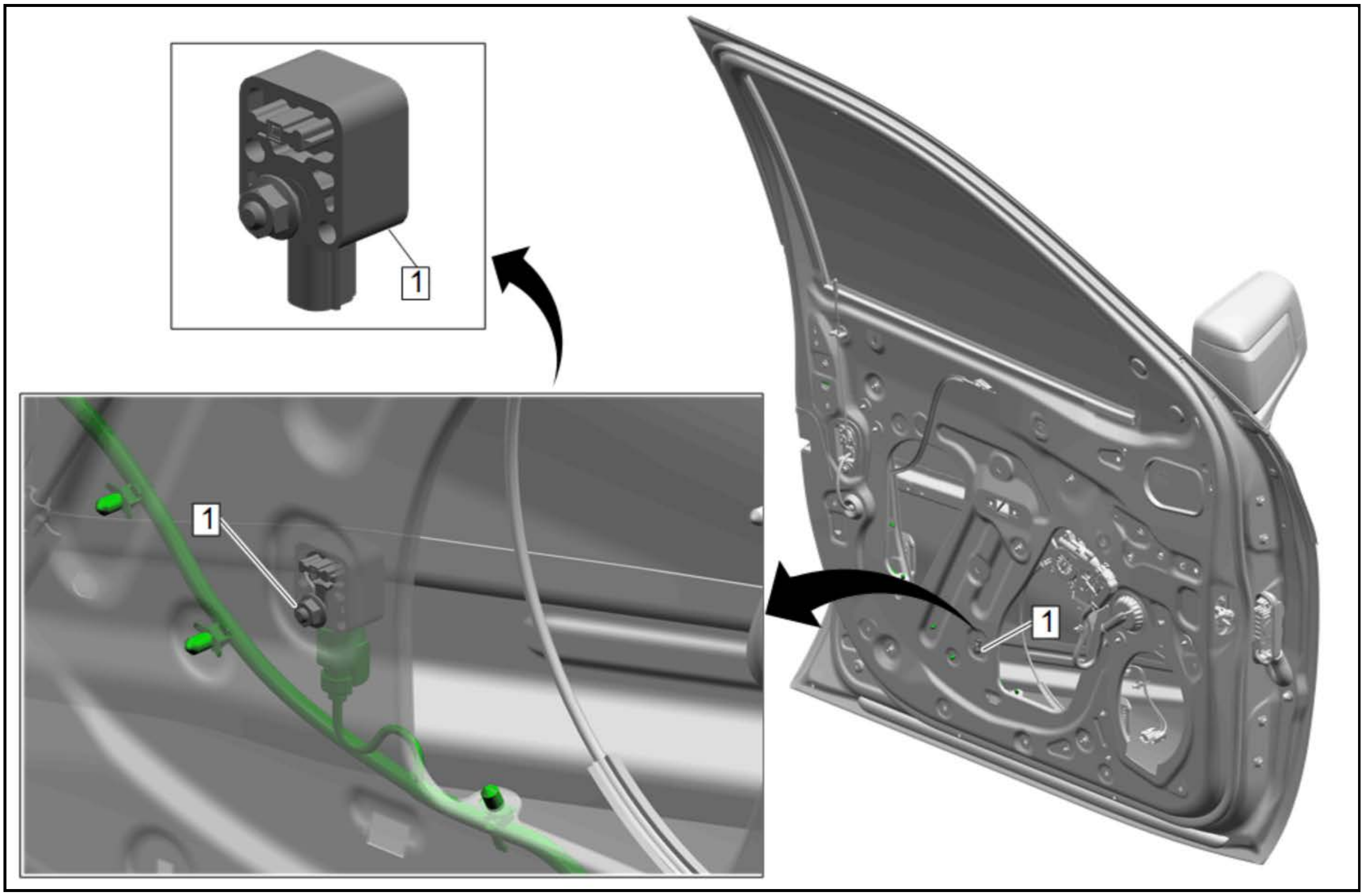
5. Route front side door inside handle cable through hole in deflector (1).
6. Front Side Door Water Deflector (1) » Remove



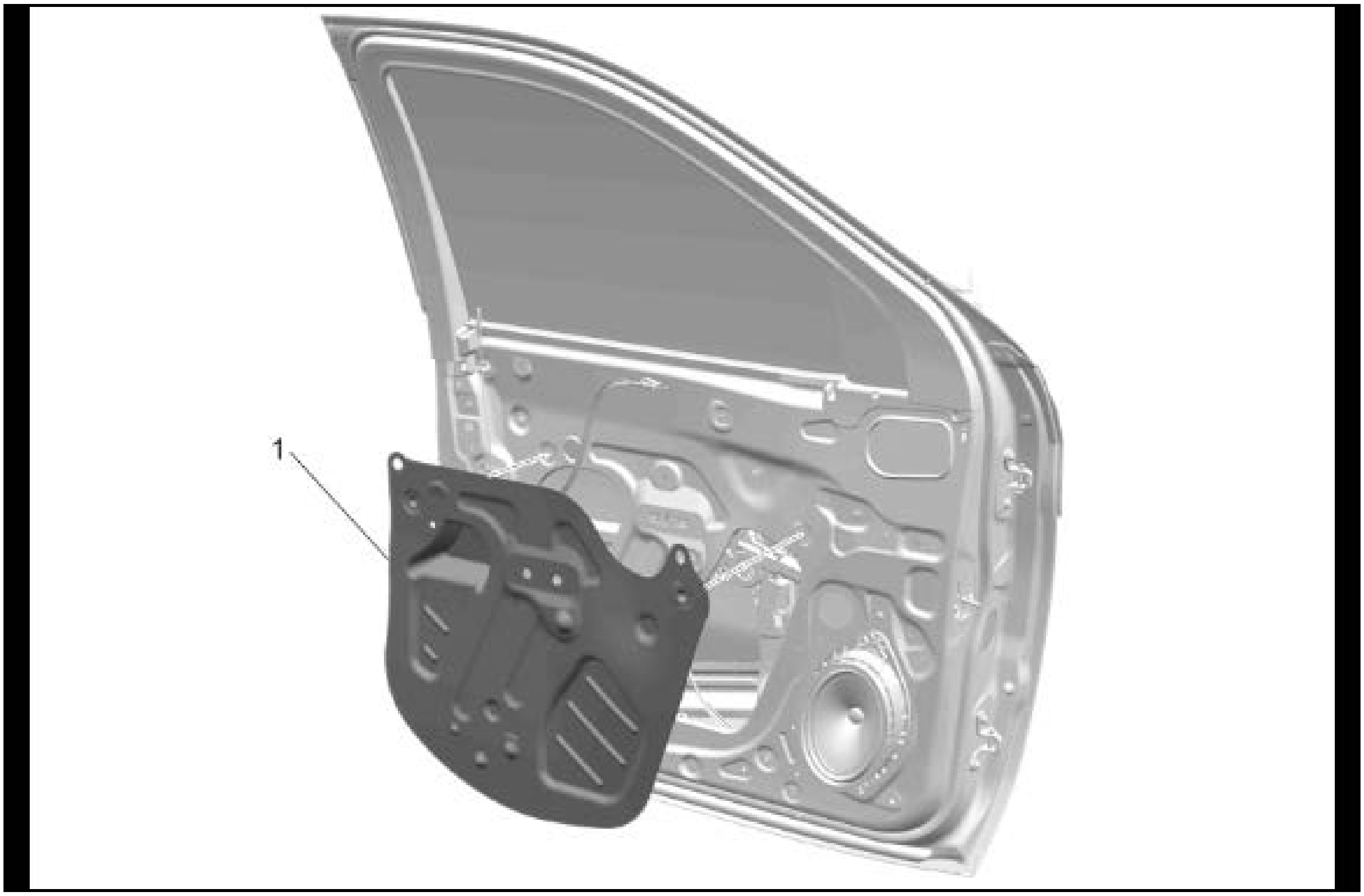
Note: The nut is integral to the sensor, Do NOT remove separately.

7. Loosen the fastener and slide the sensor out of the keyhole slot.
8. Disconnect the electrical connector.
9. Airbag Side Impact Sensor (1) » Remove

Installation Procedure

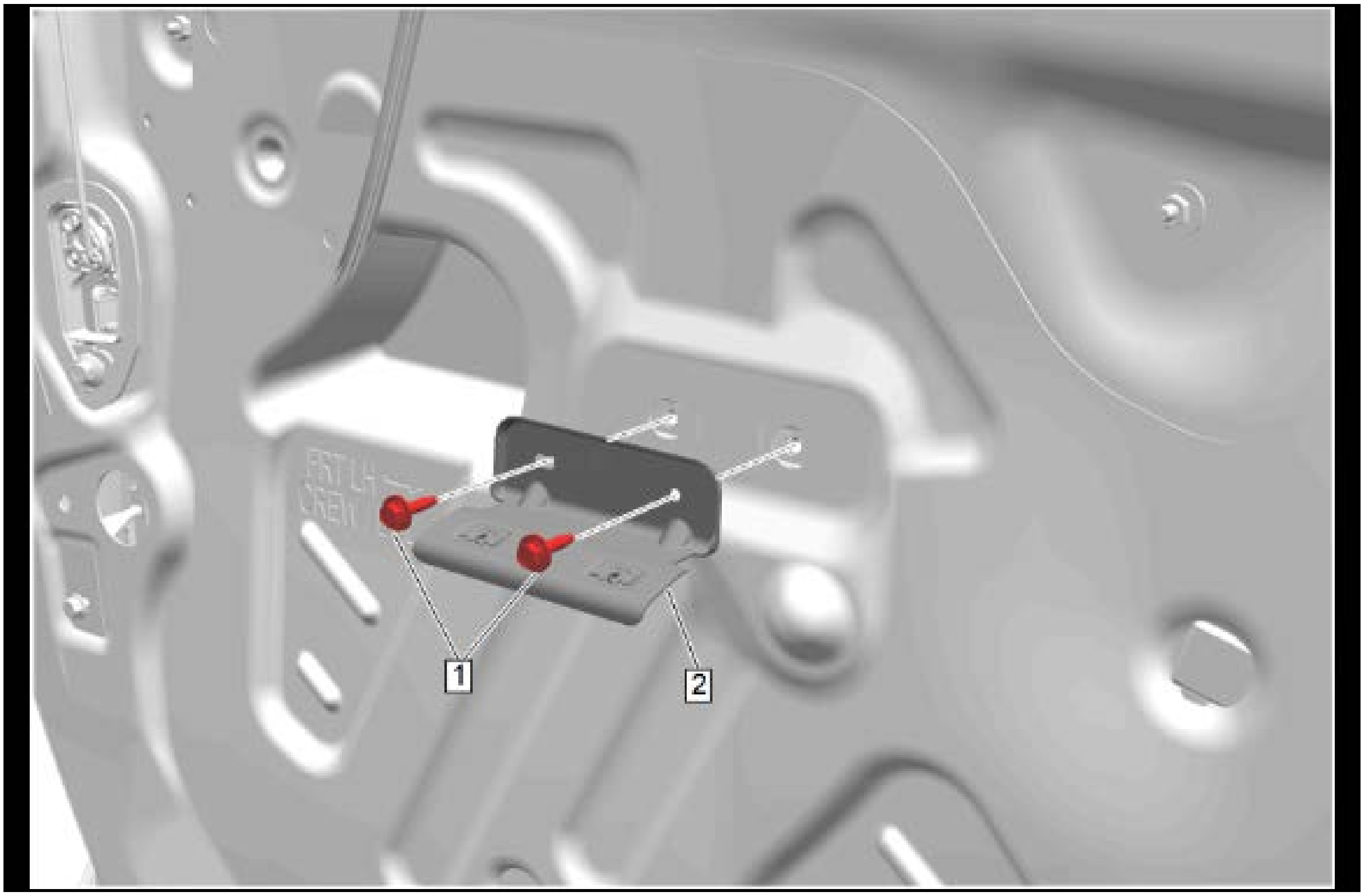


1. Connect the electrical connector.
2. Slide the sensor into the keyhole slot.
3. Airbag Side Impact Sensor (1) » Install and tighten — *Fastener Specifications on page 8-427*



5904694

4. Route front side door inside handle cable through hole in deflector.
5. Front Side Door Water Deflector (1) » Install



5904671

6. Front Side Door Armrest Bracket (2) » Install
7. Front Side Door Armrest Bracket Bolt (1) » Install and tighten [2x]
8. Front Side Door Trim » Install
9. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*.

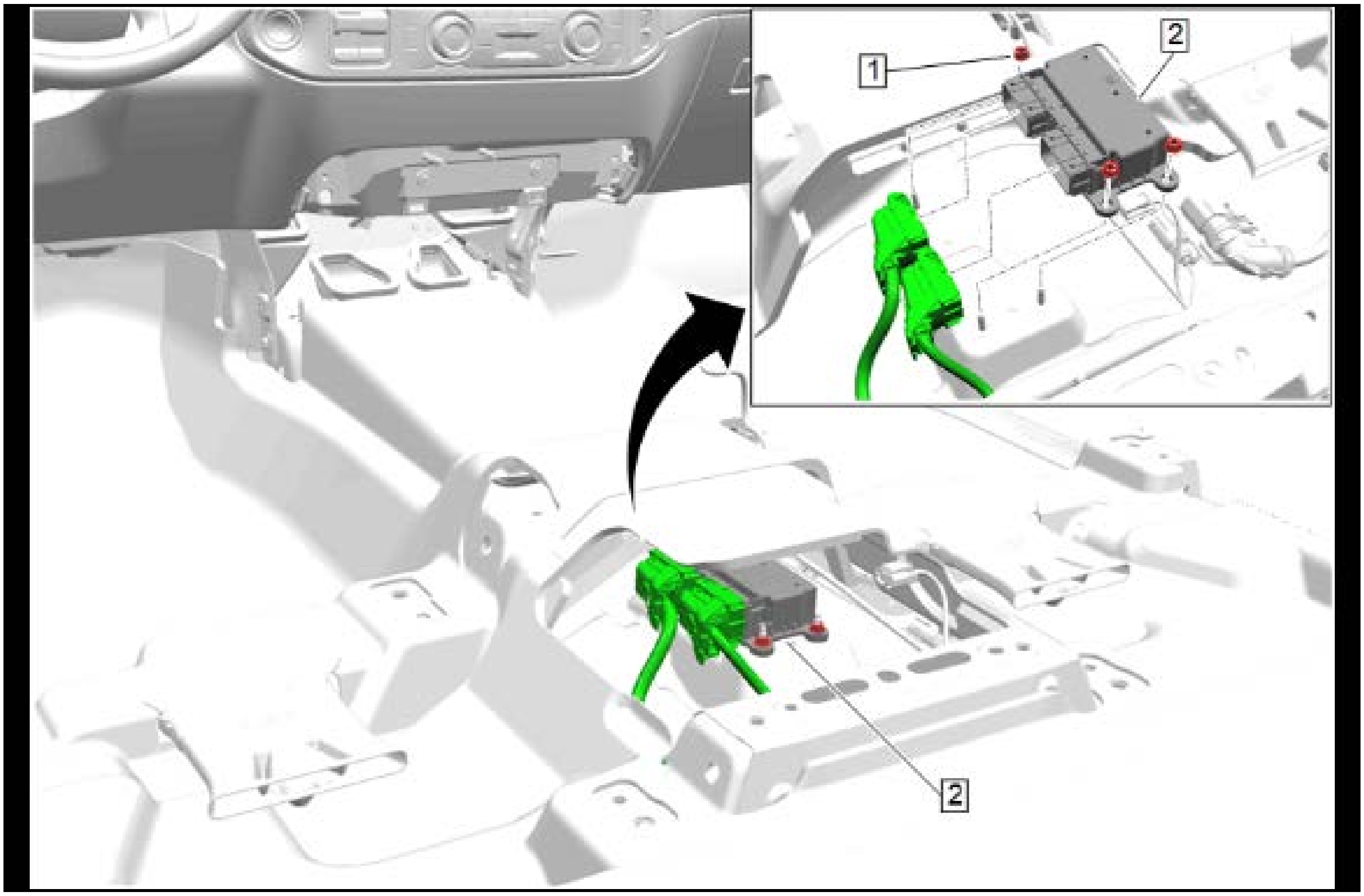
Restraints Control Module Replacement (Regular Cab)

Object-ID=5911096 Owner=Cameli, Jordan LMD=15-Oct-2021 LMB=Schaller, Dawn

Warning: SIO-ID=4218767 LMD=28-Apr-2021 ***Do not strike or jolt the Restraints Control Module (RCM). Before applying power to the RCM, make sure that it is securely fastened. Failure to observe the correct installation procedure could cause Supplemental Inflatable Restraint (SIR) deployment, personal injury, or unnecessary SIR system repairs.***

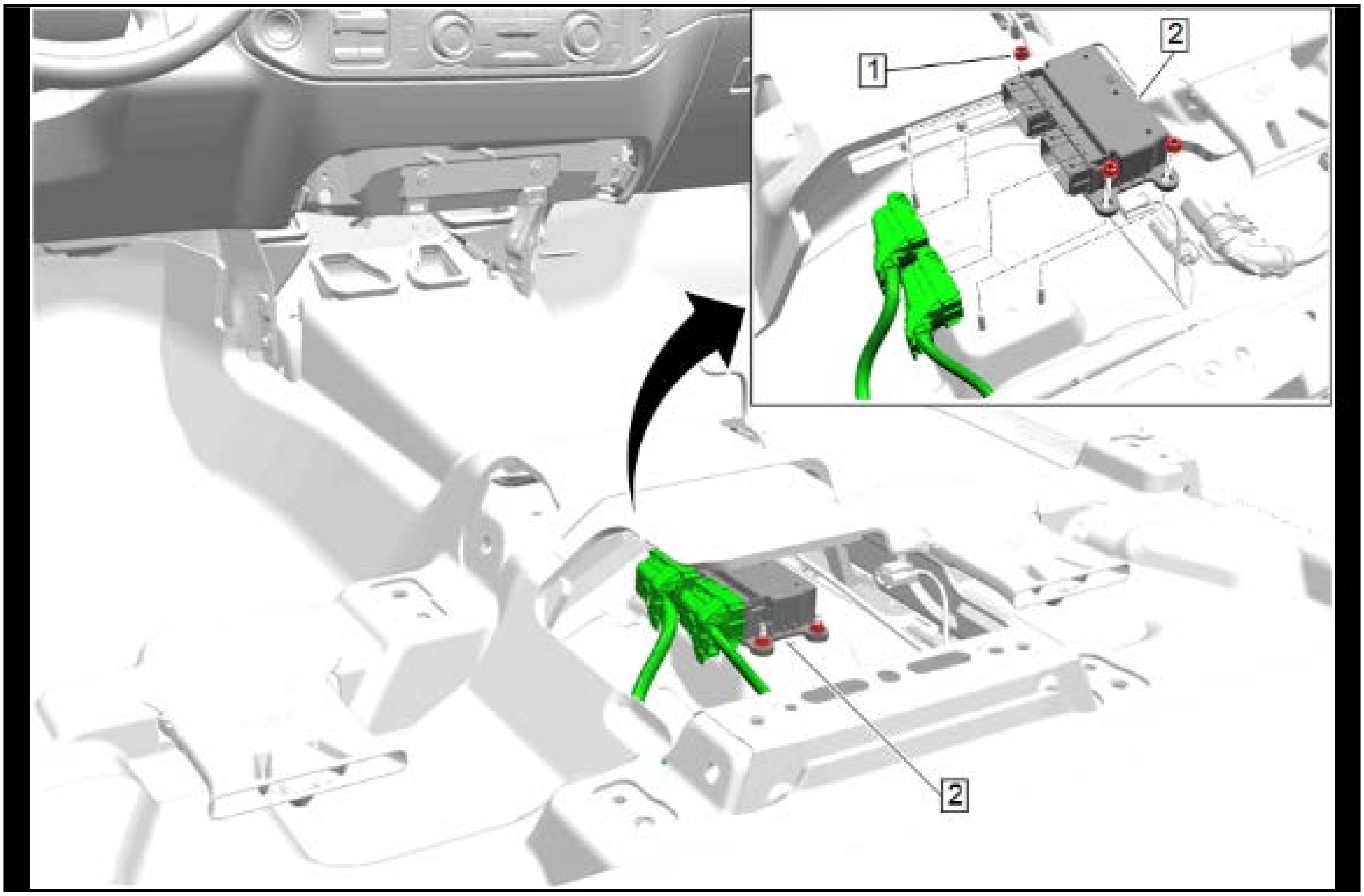
Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*
2. Remove the driver and passenger seat.
3. Front Center Seat » Remove



4. Airbag Sensing and Diagnostic Module Nut (1) » Remove [3x]
5. Restraints Control Module (2) » Remove
6. Disconnect the electrical connectors.

Installation Procedure



5909482

1. Connect the electrical connectors.
2. Restraints Control Module (2) » Install
3. Airbag Sensing and Diagnostic Module Nut (1) » Install and tighten [3x] — *Fastener Specifications on page 8-427*
4. Front Center Seat » Install
5. Install the driver and passenger seat.
6. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*.
7. Perform the necessary programming and setup procedure:

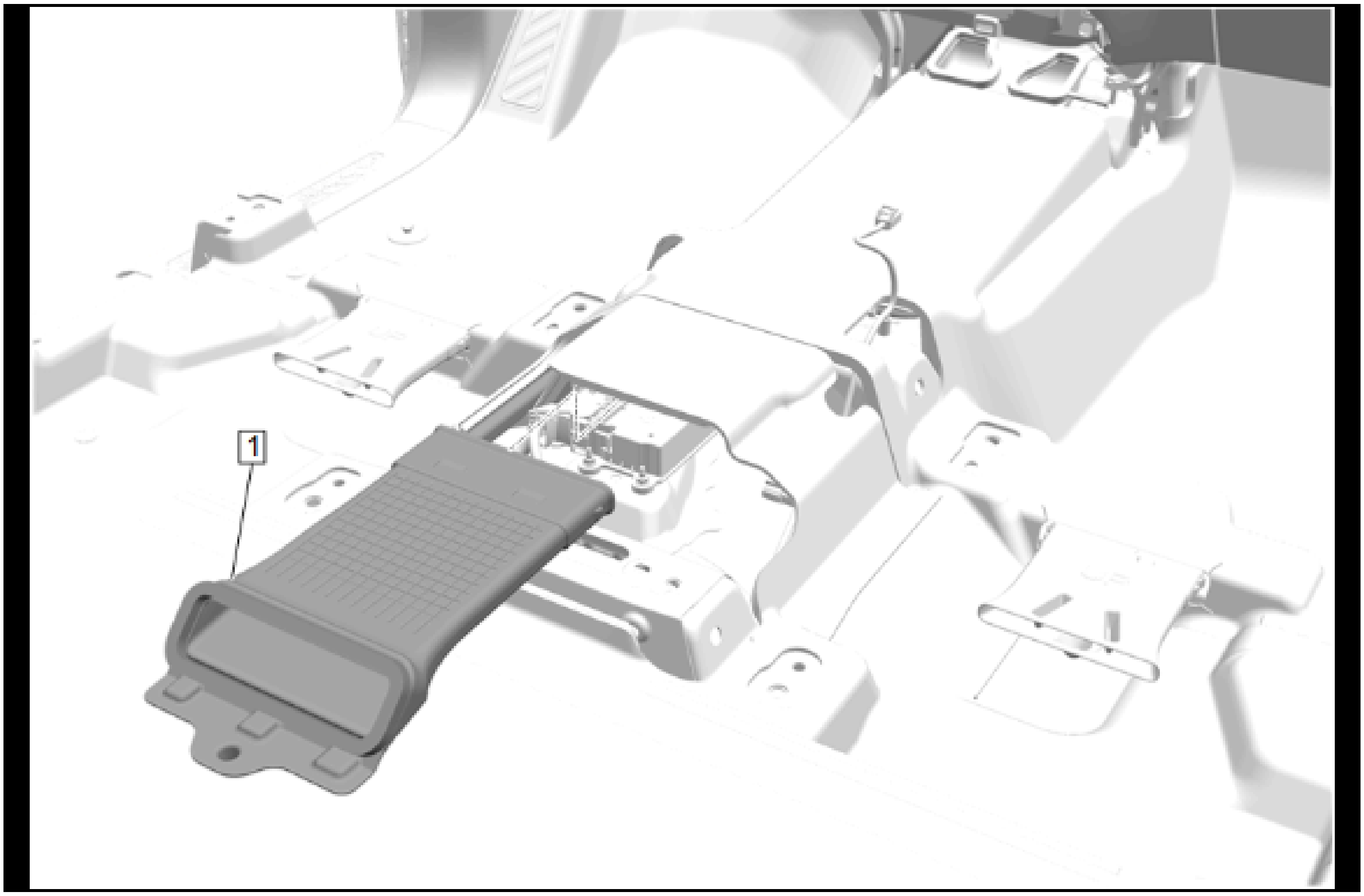
Restraints Control Module Replacement

Object-ID=5906816 Owner=Cameli, Jordan LMD=16-Feb-2022 LMB=Dwamena, Terrance

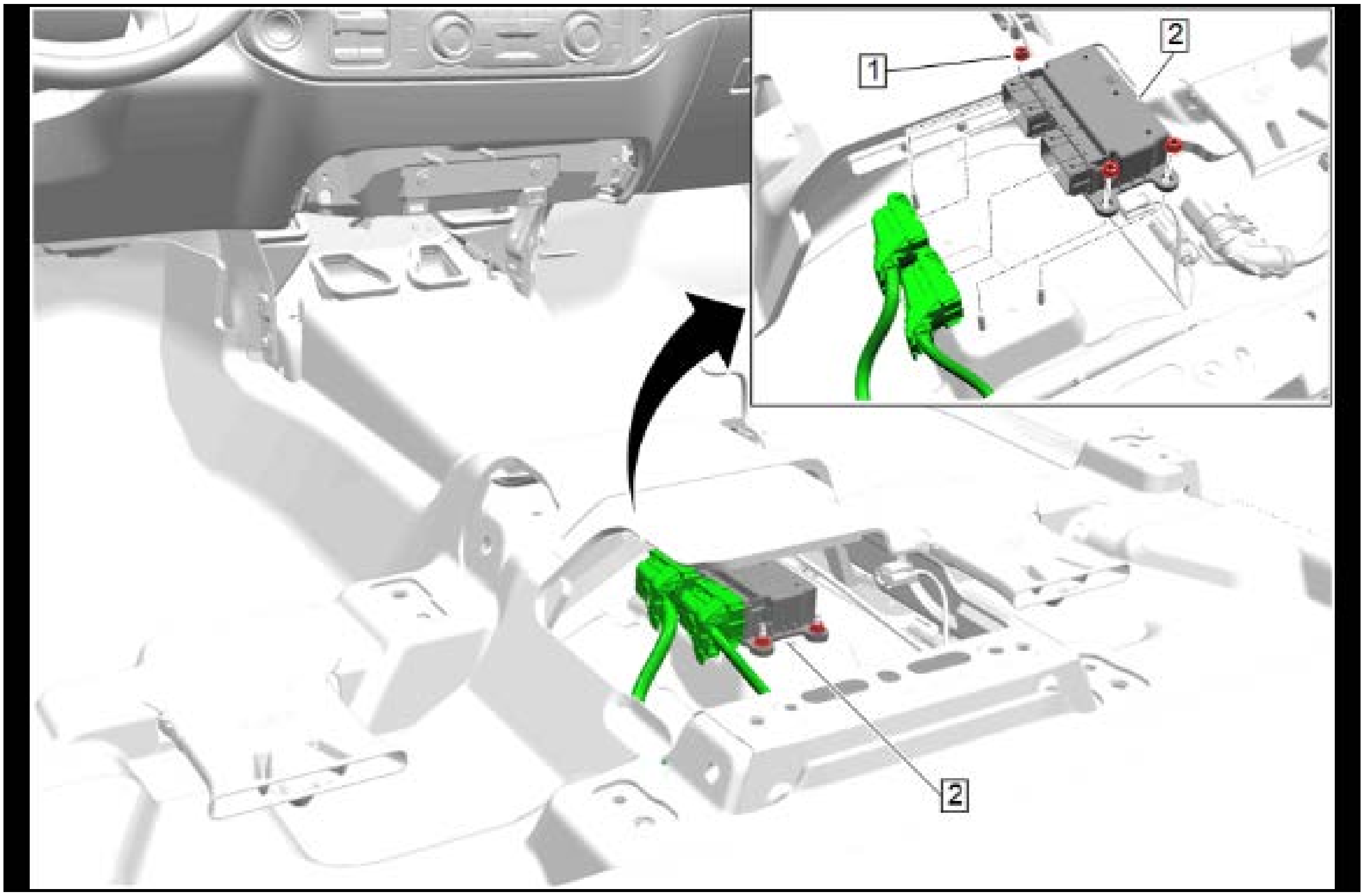
Warning: SIO-ID=4218767 LMD=28-Apr-2021 ***Do not strike or jolt the Restraints Control Module (RCM). Before applying power to the RCM, make sure that it is securely fastened. Failure to observe the correct installation procedure could cause Supplemental Inflatable Restraint (SIR) deployment, personal injury, or unnecessary SIR system repairs.***

Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*
2. Front Center Seat » Remove



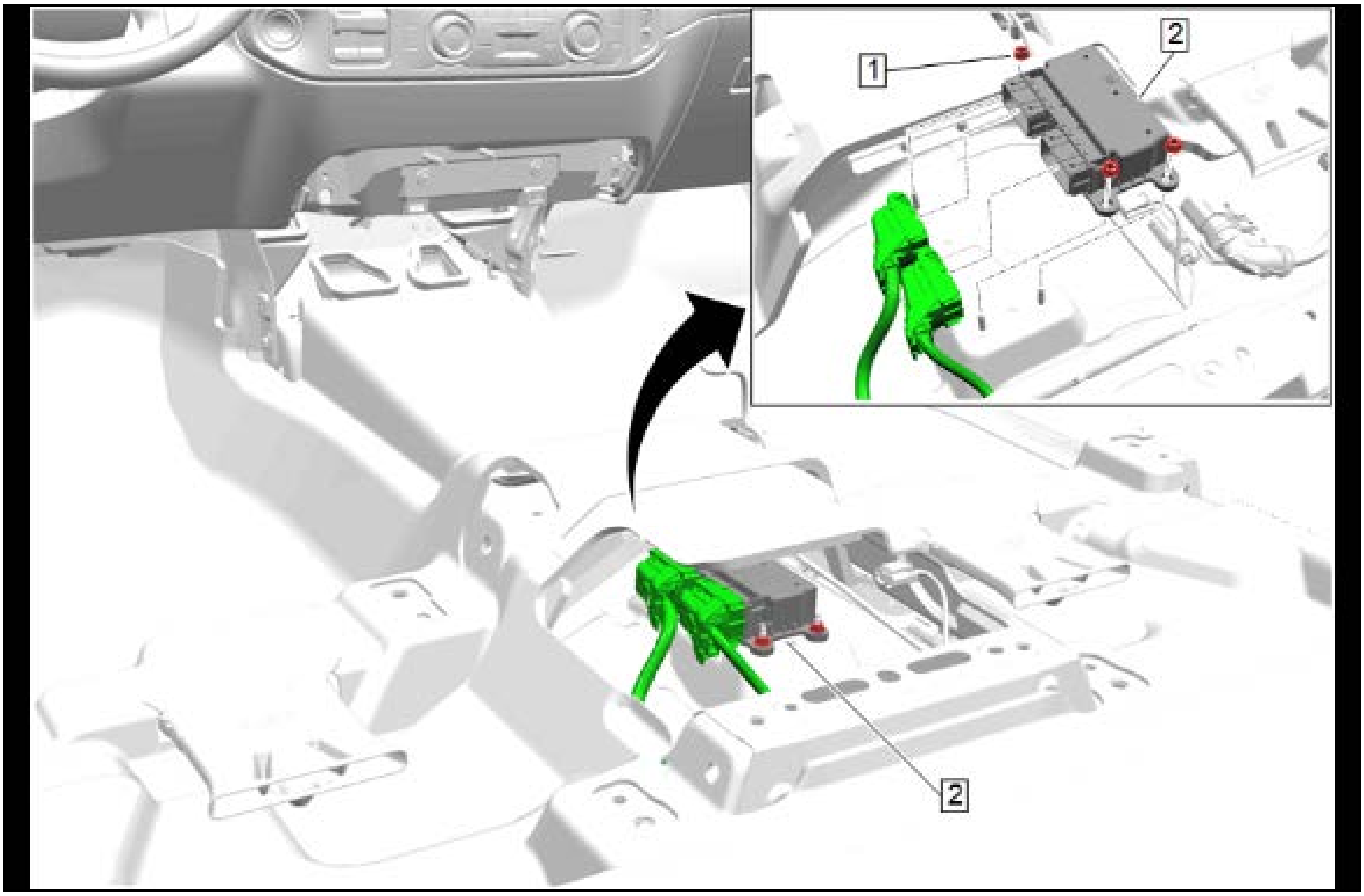
3. Air Distributor Duct Adapter (1) » Remove



5909482

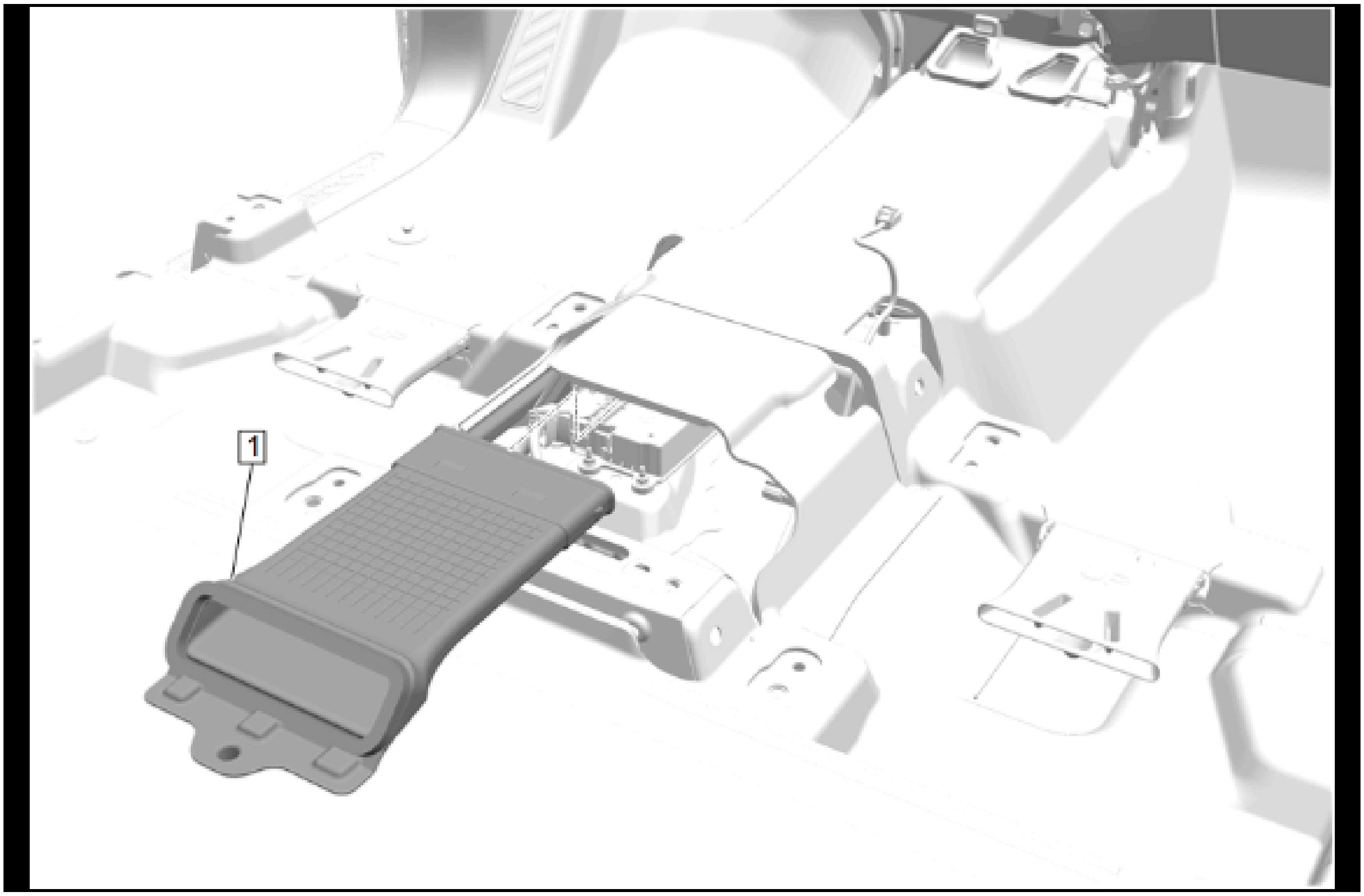
4. Airbag Sensing and Diagnostic Module Nut (1) » Remove [3x]
5. Restraints Control Module (2) » Remove
6. Disconnect the electrical connectors.

Installation Procedure



5909482

1. Connect the electrical connectors.
2. Restraints Control Module (2) » Install
3. Airbag Sensing and Diagnostic Module Nut (1) » Install and tighten [3x] — *Fastener Specifications on page 8-427*



5909481

4. Air Distributor Duct Adapter (1) » Install
5. Front Center Seat » Install
6. Enable the SIR System. SIR Disabling and Enabling on page 8-481.
7. Perform the necessary programming and setup procedure:

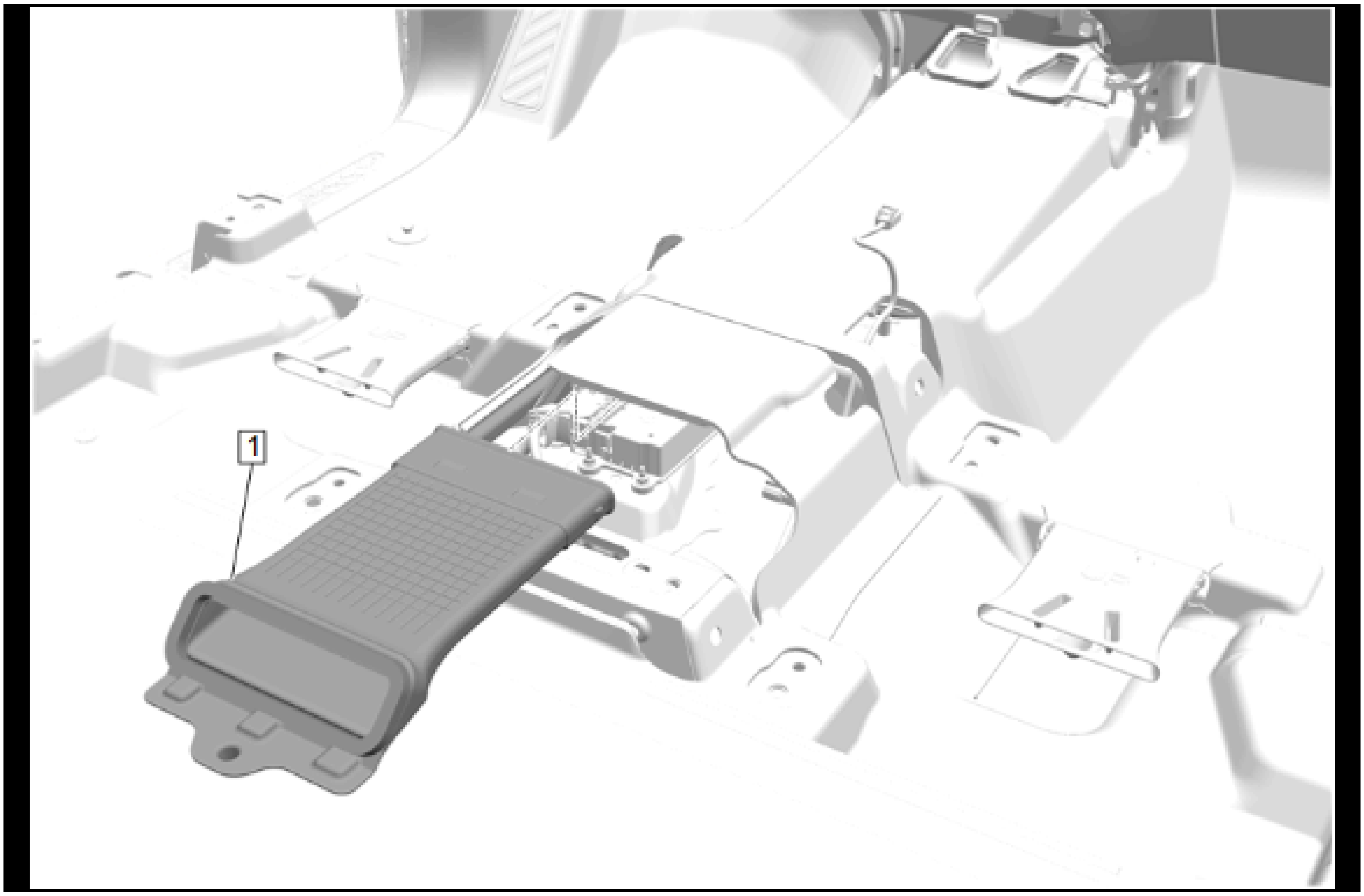
Restraints Control Module Replacement

Object-ID=5906805 Owner=Cameli, Jordan LMD=28-Mar-2023 LMB=Pote, James

Warning: SIO-ID=4218767 LMD=28-Apr-2021 ***Do not strike or jolt the Restraints Control Module (RCM). Before applying power to the RCM, make sure that it is securely fastened. Failure to observe the correct installation procedure could cause Supplemental Inflatable Restraint (SIR) deployment, personal injury, or unnecessary SIR system repairs.***

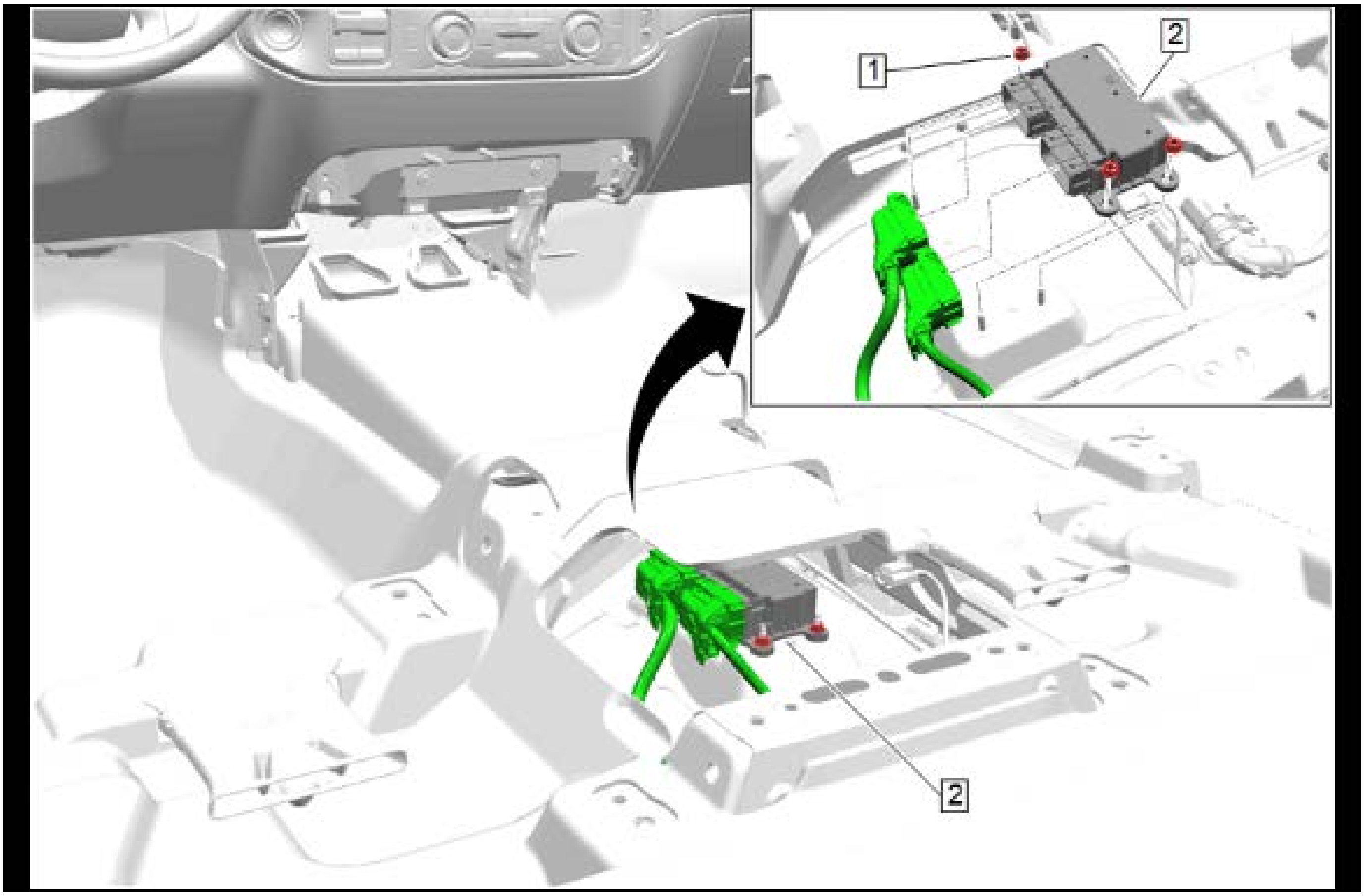
Removal Procedure

1. Front Floor Console » Remove



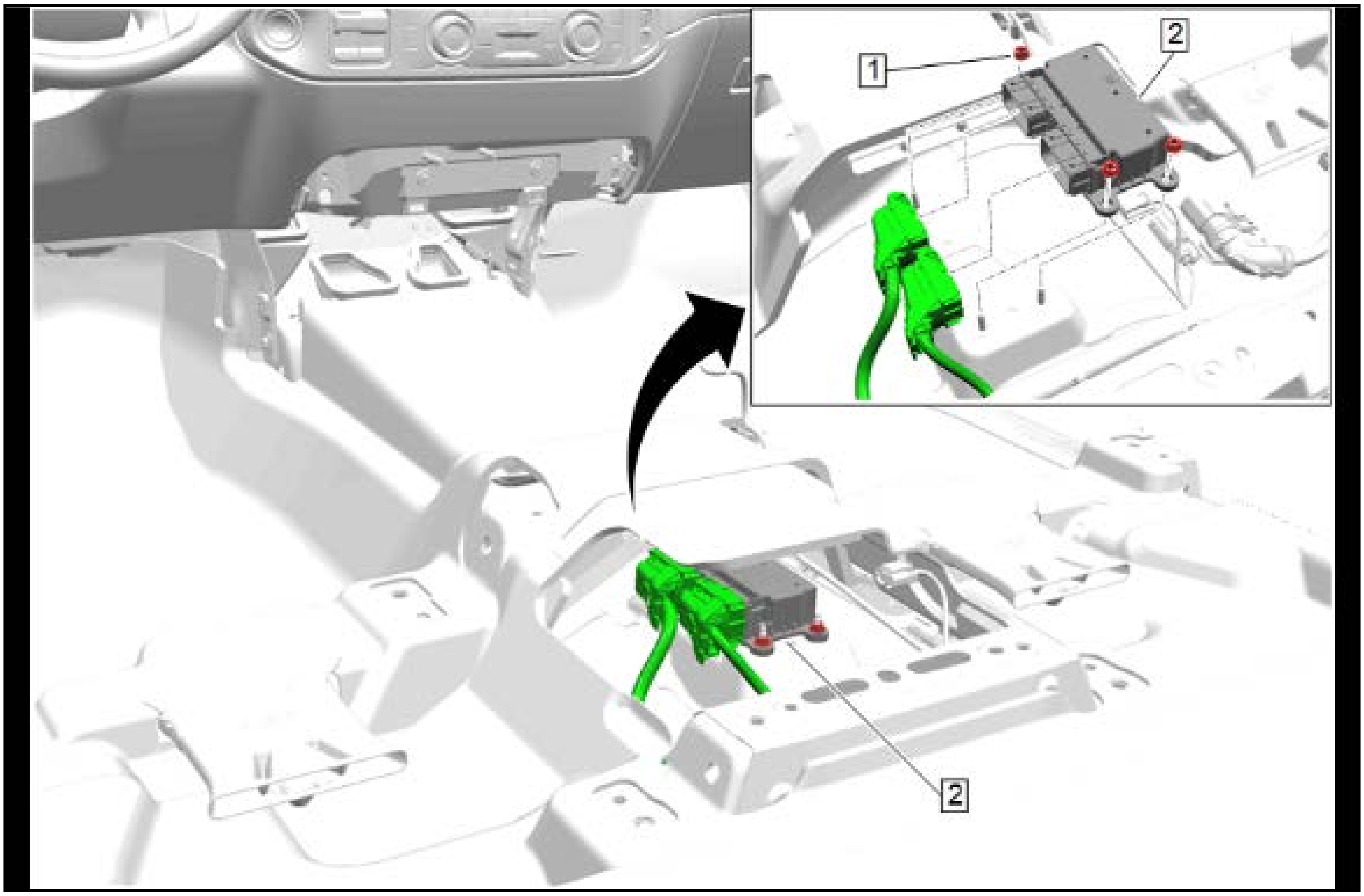
5909481

2. Air Distributor Duct Adapter (1) » Remove



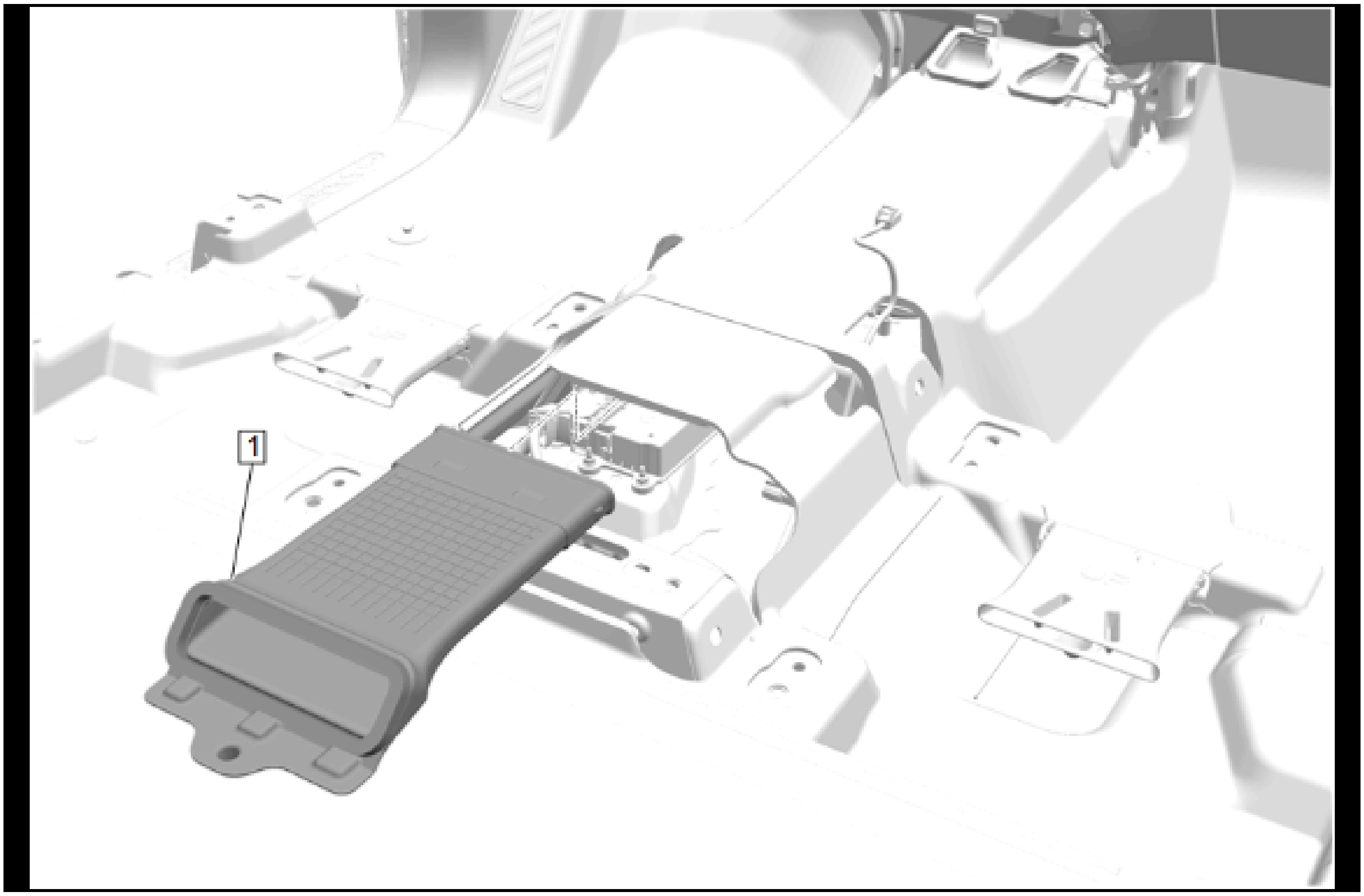
3. Airbag Sensing and Diagnostic Module Nut (1) » Remove [3x]
4. Restraints Control Module (2) » Remove
5. Disconnect the electrical connectors.

Installation Procedure



5909482

1. Connect the electrical connectors.
2. Restraints Control Module (2) » Install
3. Airbag Sensing and Diagnostic Module Nut (1) » Install and tighten [3x] — *Fastener Specifications on page 8-427*



5909481

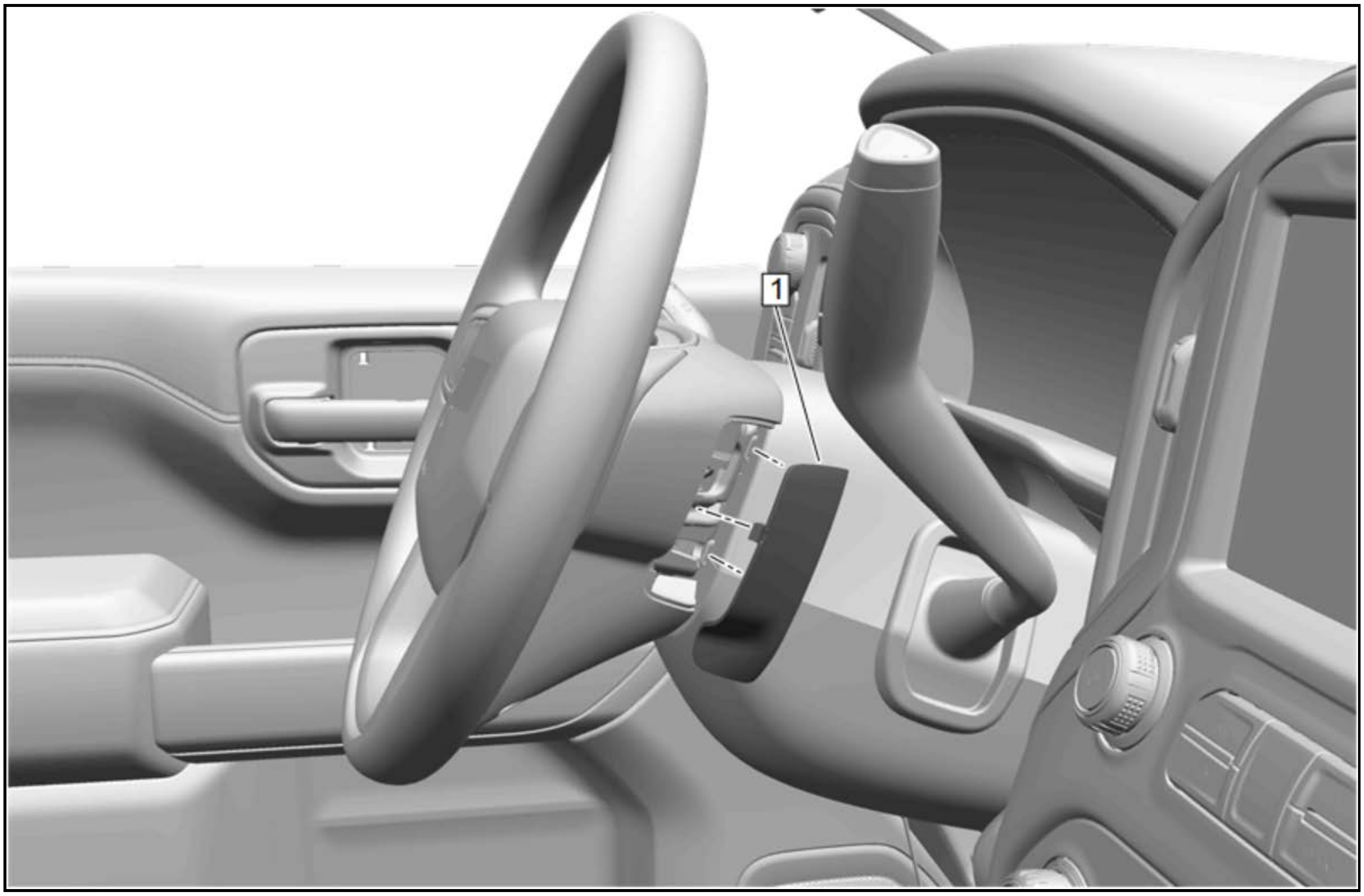
4. Air Distributor Duct Adapter (1) » Install
5. Front Floor Console » Install
6. Perform the necessary programming and setup procedure: Control Module Reference

Steering Wheel Airbag Replacement

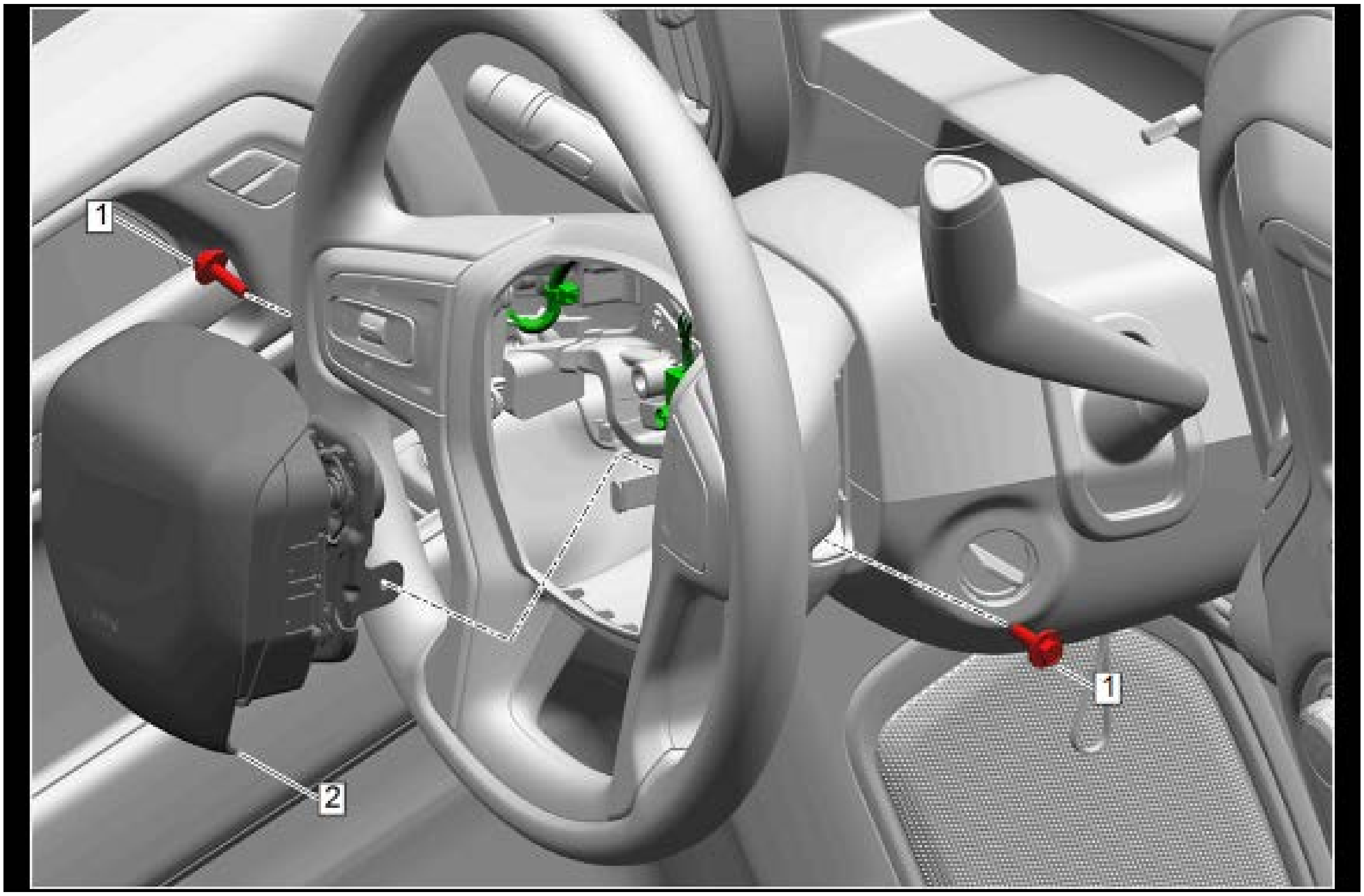
Object-ID=5628381 Owner=Cameli, Jordan LMD=15-Nov-2021 LMB=Cameli, Jordan

Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*

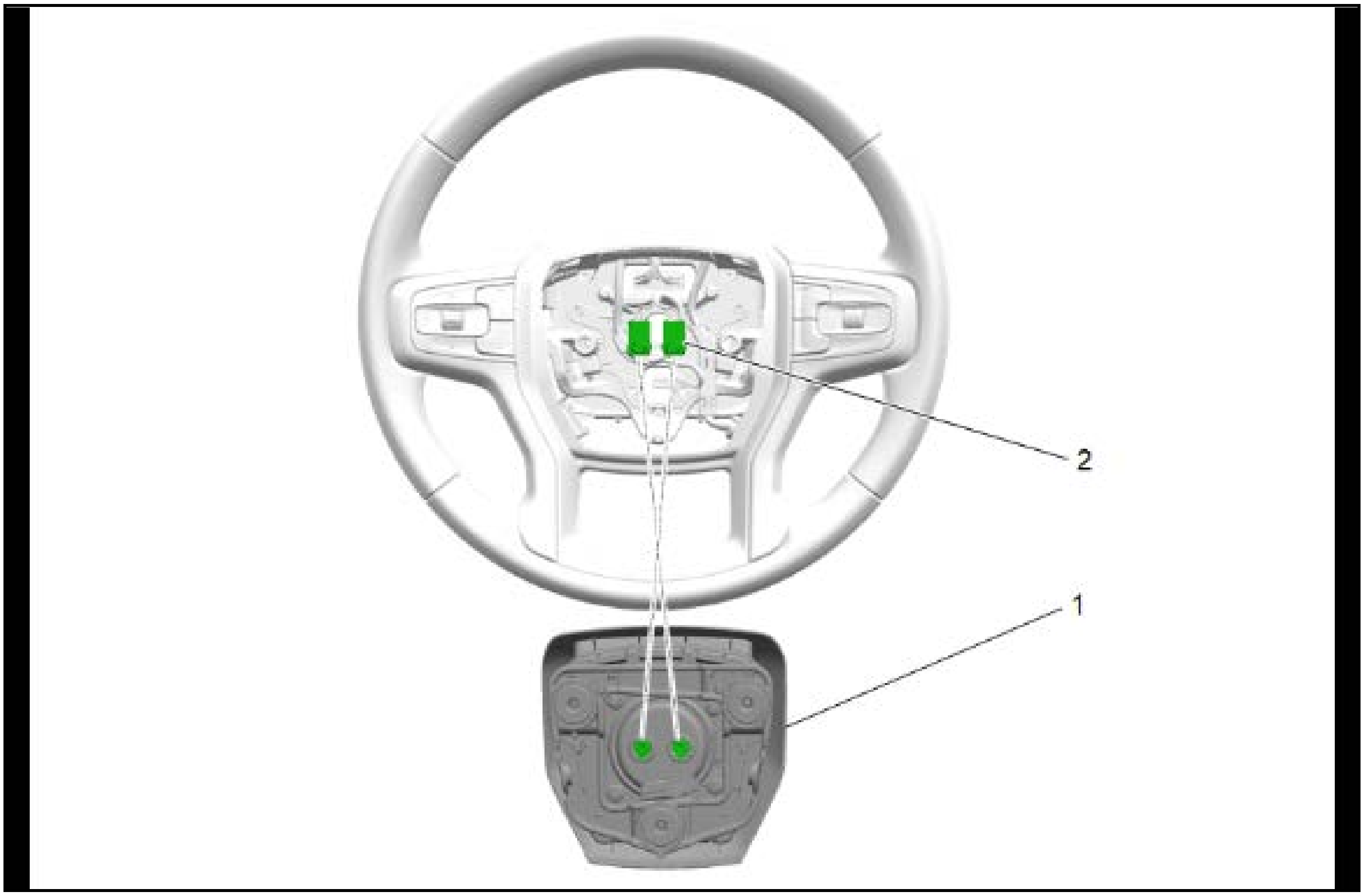


2. Use a flat bladed plastic trim tool to depress the steering wheel airbag access hole cover detents to remove the 2 steering wheel airbag access hole covers (1).

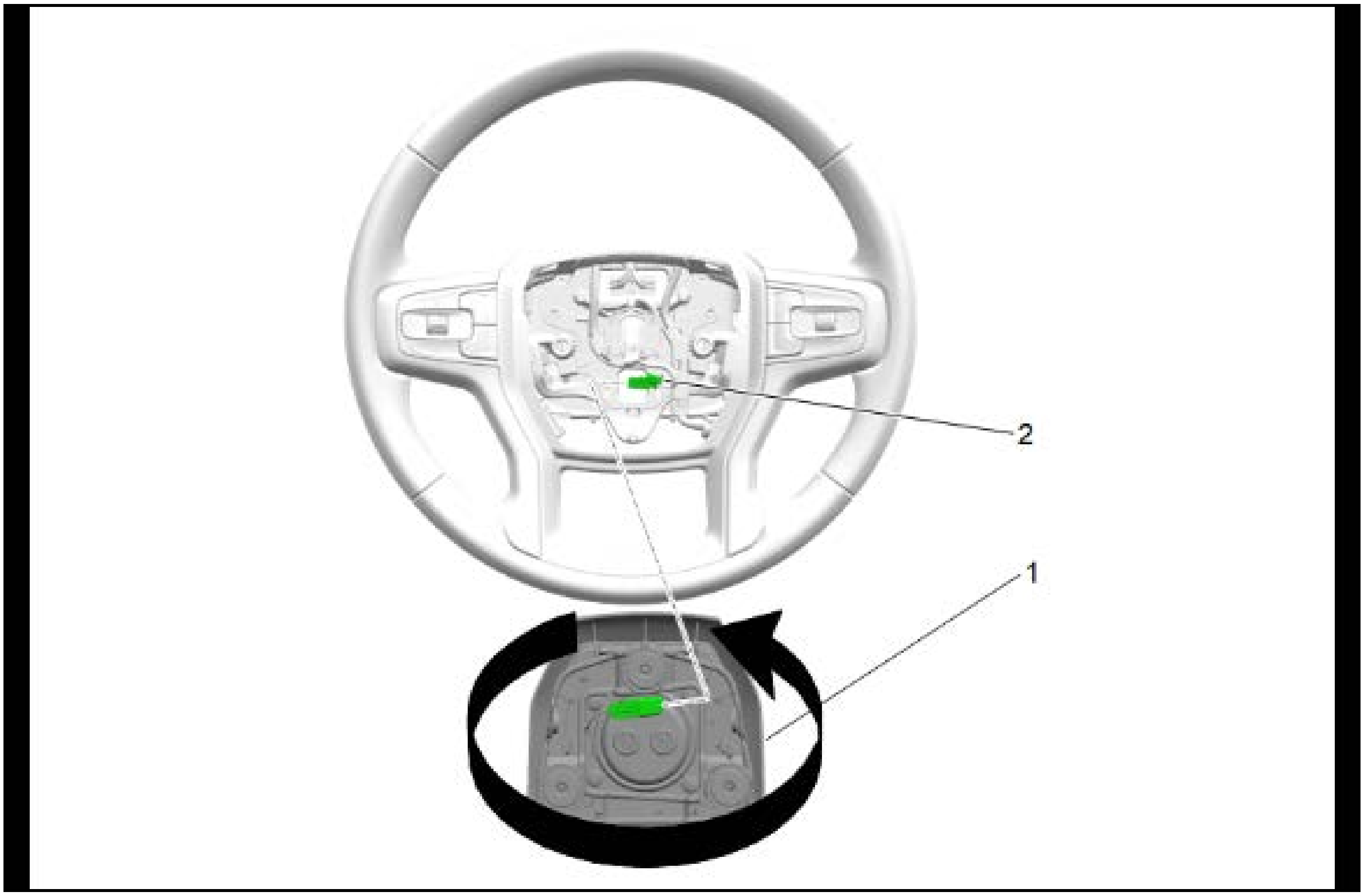


4. Steering Wheel Airbag Bolt (1) » Remove [2x]
5. Pull the steering wheel airbag away from the steering wheel to expose the electrical connections.
6. Release the connector position assurance (CPA) retainer.
7. Disconnect the electrical connectors.
8. Steering Wheel Airbag (2) » Remove
9. *Inflatable Restraint Module Handling and Scrapping on page 8-659*

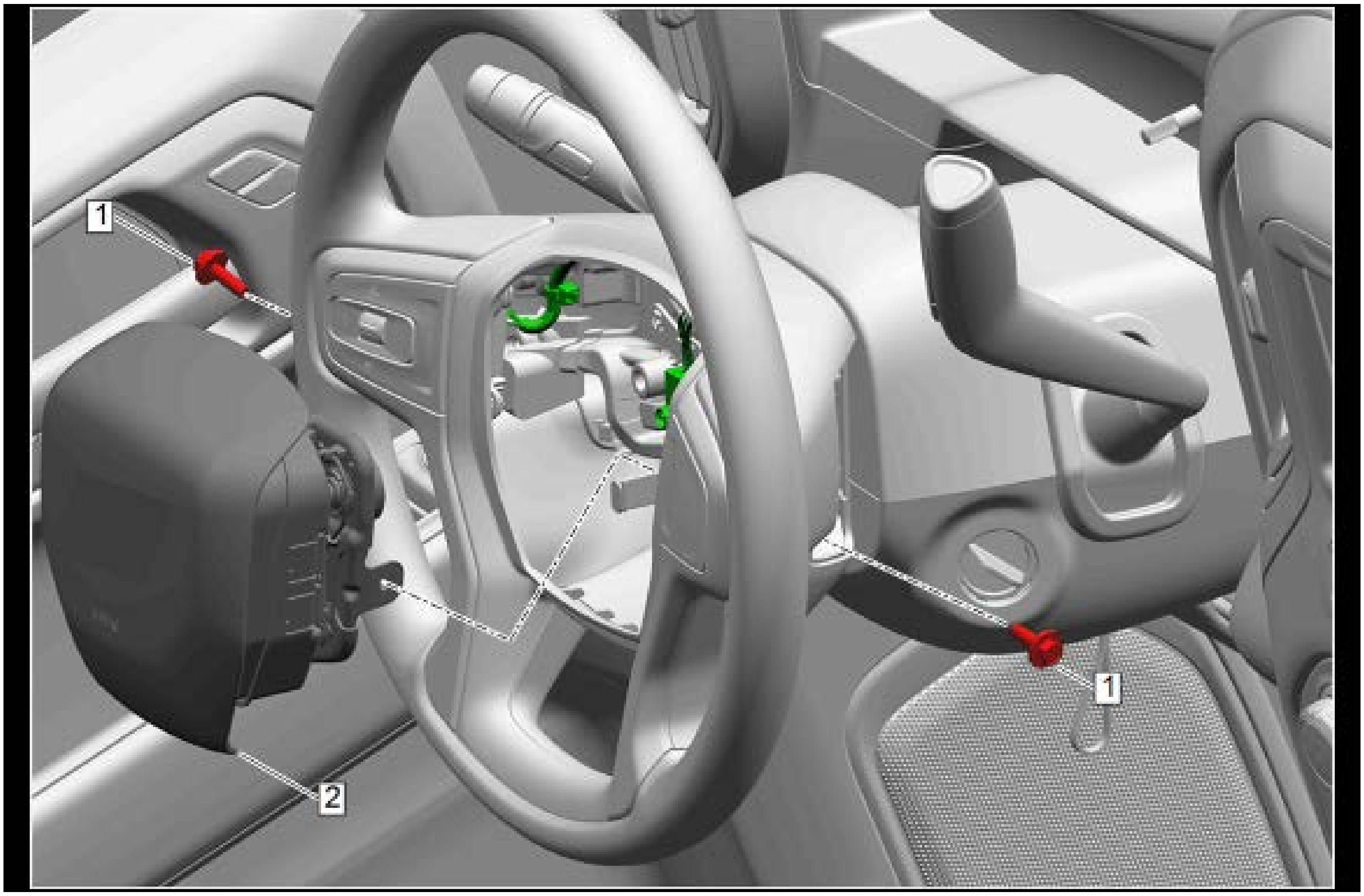
Installation Procedure



1. Orient the steering wheel airbag (1) with the electrical connectors facing up, and the top of the steering wheel air bag (1) pointing toward the steering wheel.
2. Connect the 2 steering wheel airbag electrical connectors (2).

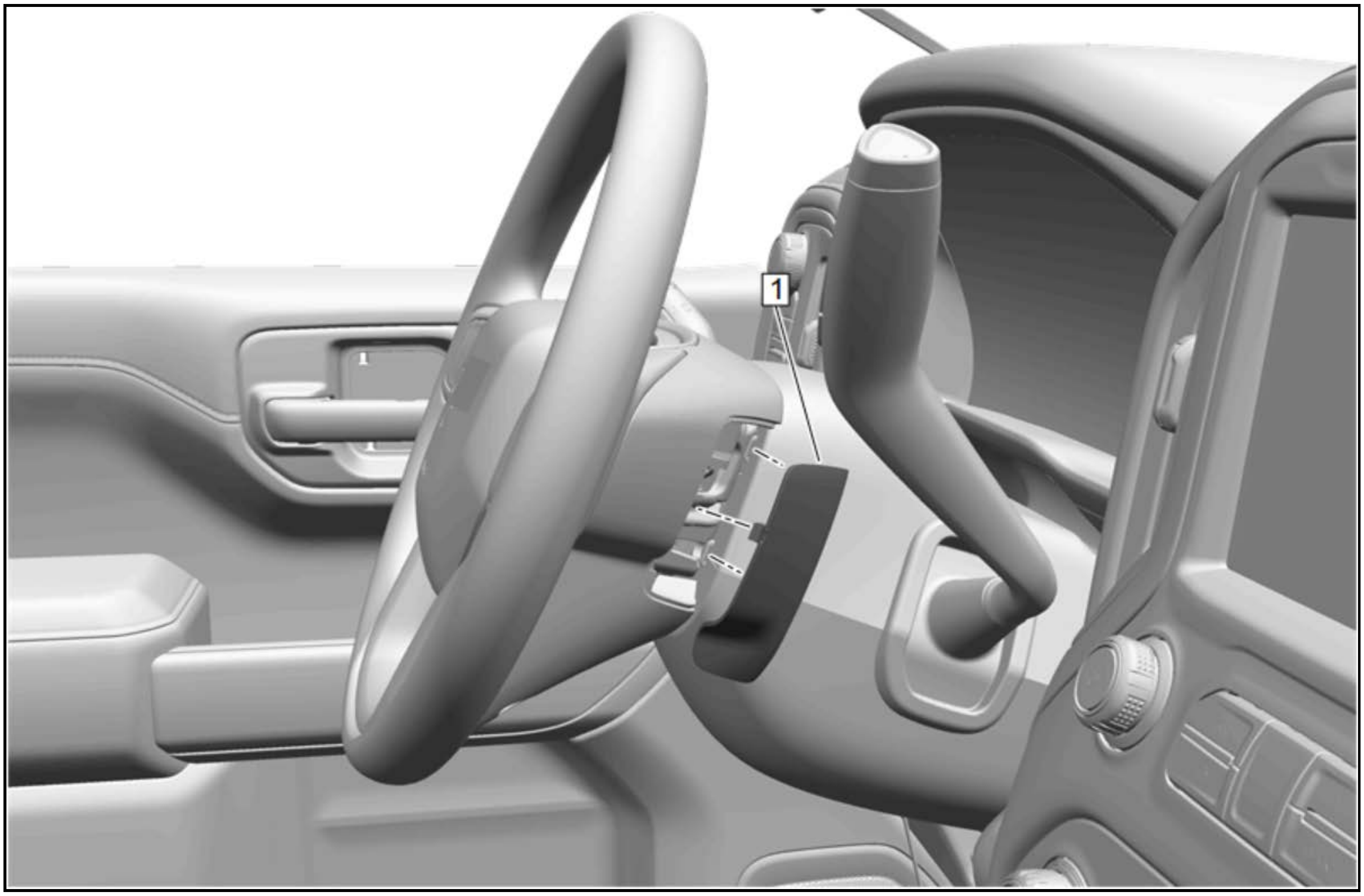


3. Rotate the steering wheel airbag (1) counter clockwise, 180 degrees, so that the bottom of the steering wheel airbag (1) points toward the steering wheel.
4. Connect the horn electrical connector (2).
5. Install any connector position assurance (CPA) devices or secondary locks.



Warning: SIO-ID=3513529 LMD=11-Feb-2019 ***After installation of the steering wheel airbag module to the steering wheel, slightly pull the module outward. If there is no give on the airbag module then it is secured correctly. If the airbag module is not fully attached personal injury could result.***

6. Steering Wheel Airbag (2) » Install
7. Steering Wheel Airbag Bolt (1) » Install and tighten [2x] — *Fastener Specifications on page 8-427*



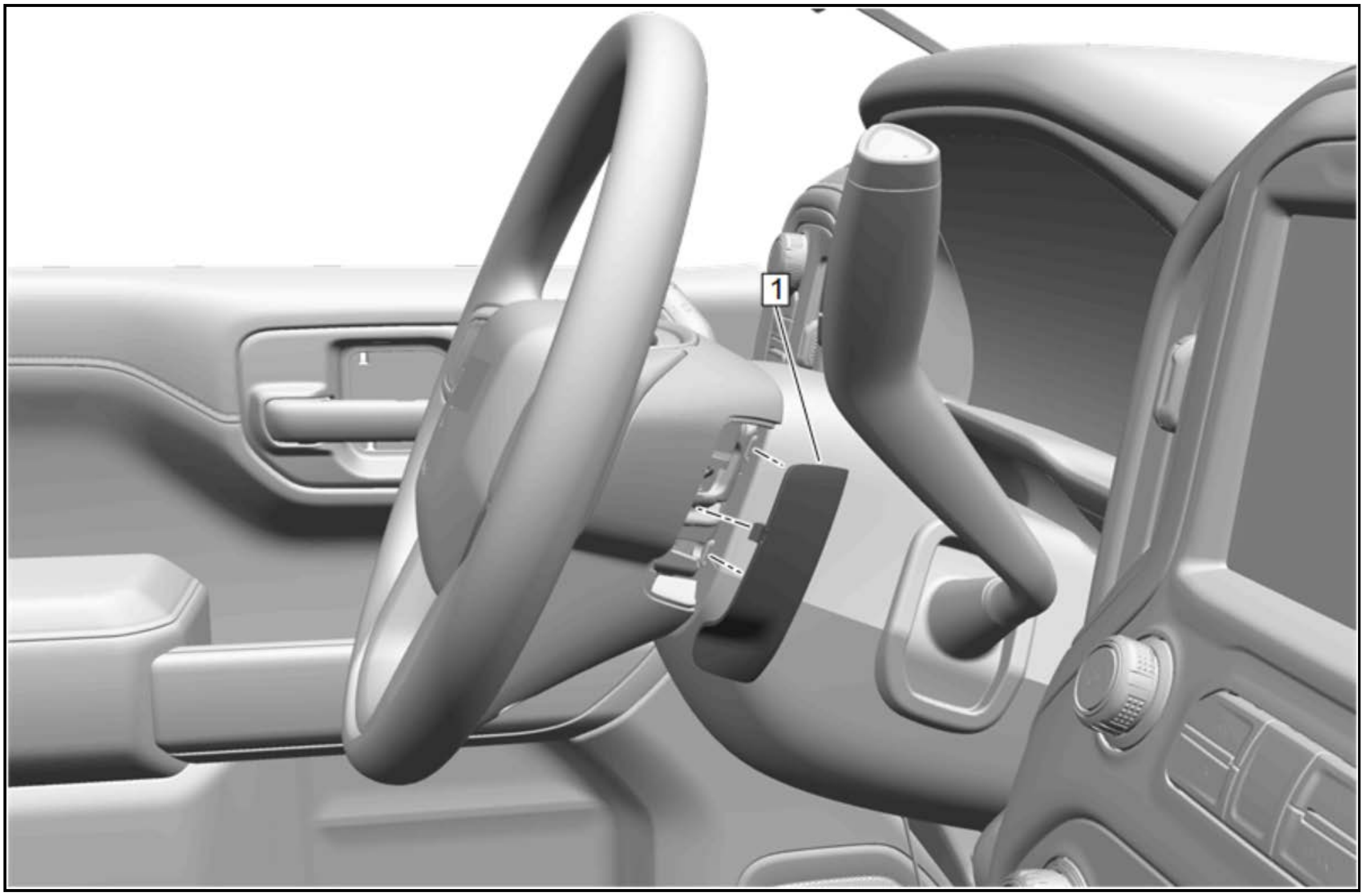
8. Install the 2 steering wheel airbag access hole covers (1).
9. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

Steering Wheel Airbag Coil Replacement

Object-ID=5680665 Owner=Olson, Todd LMD=13-Dec-2022 LMB=Olson, Todd

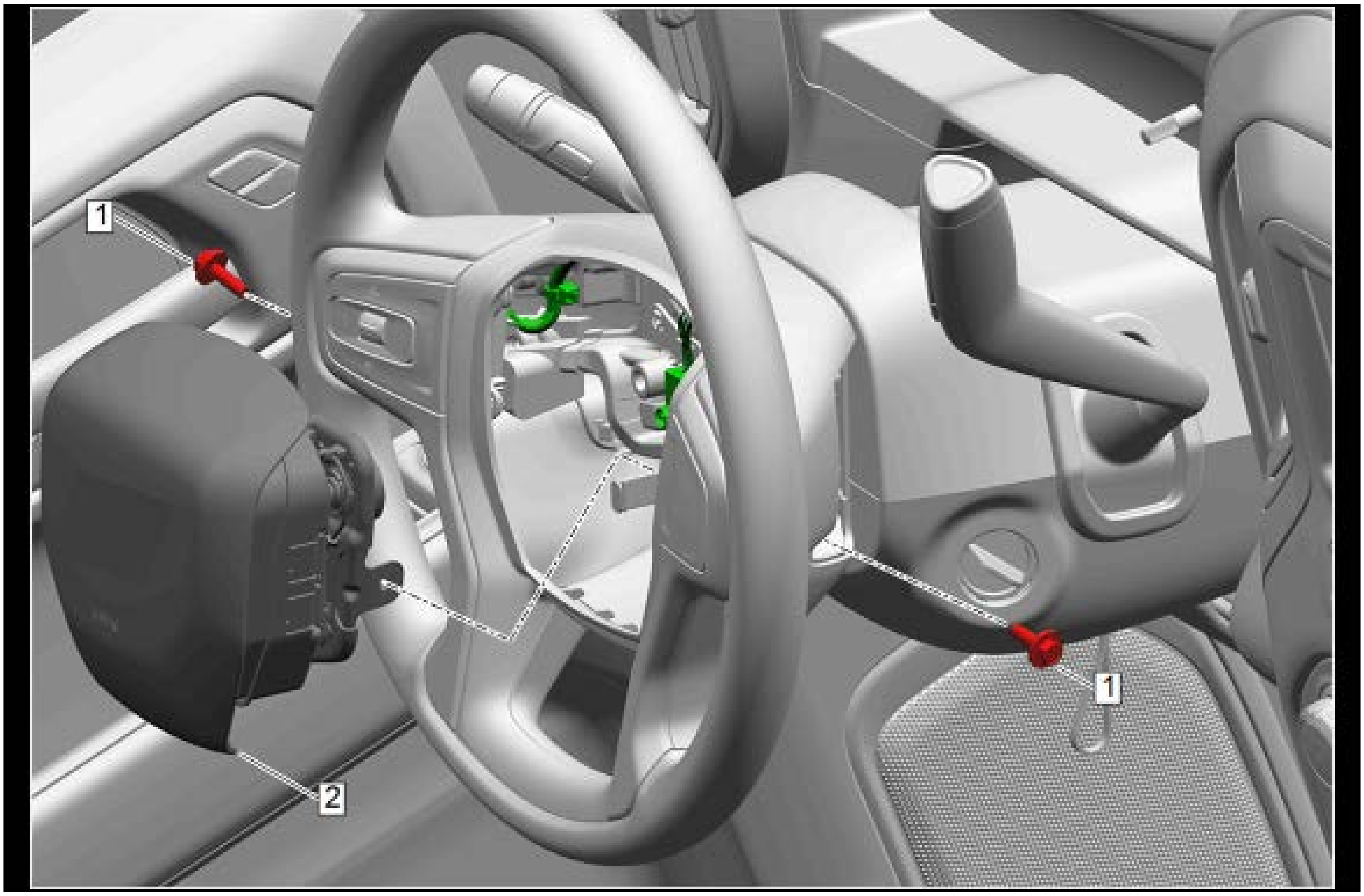
Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*

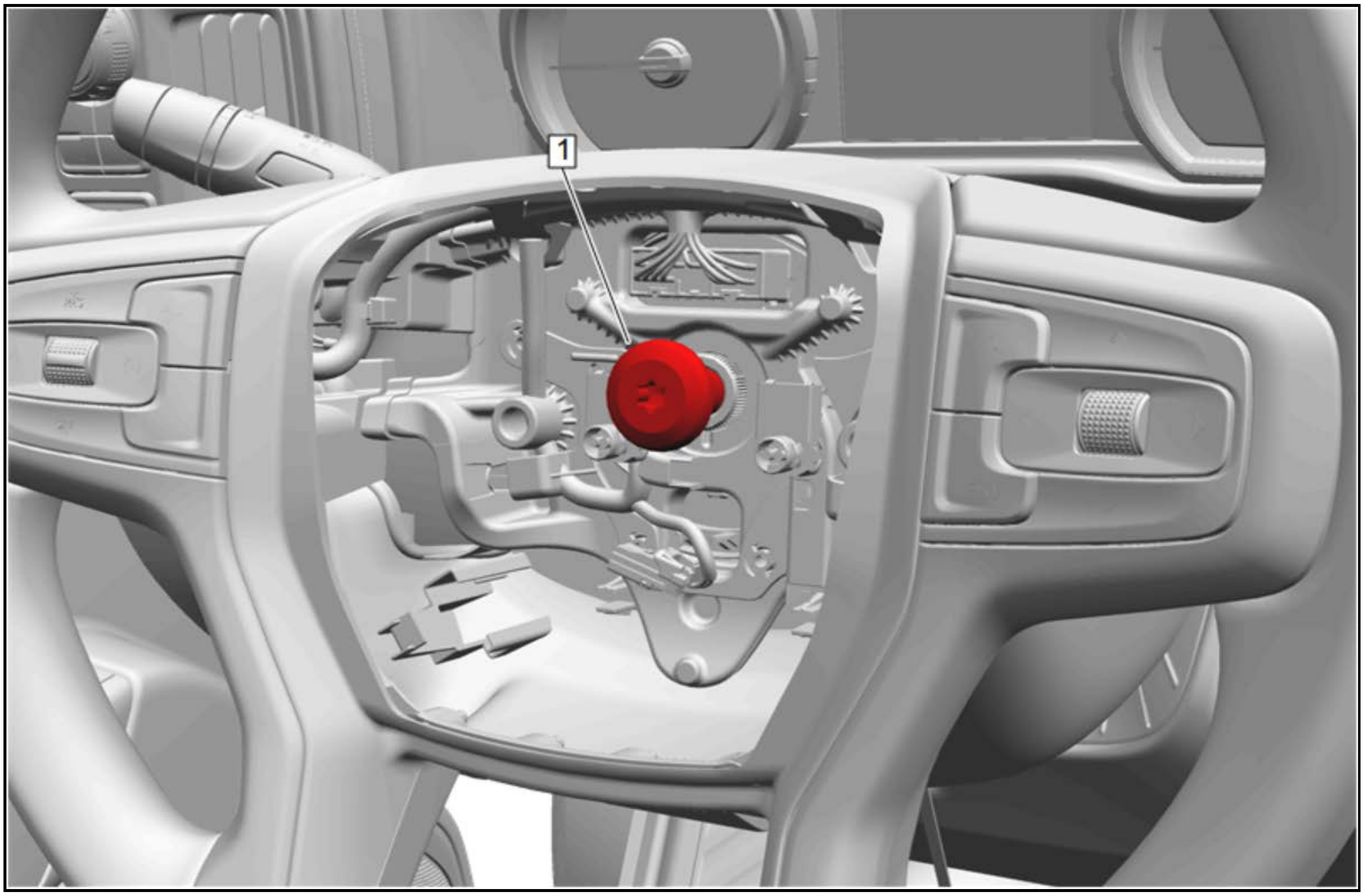


4994464

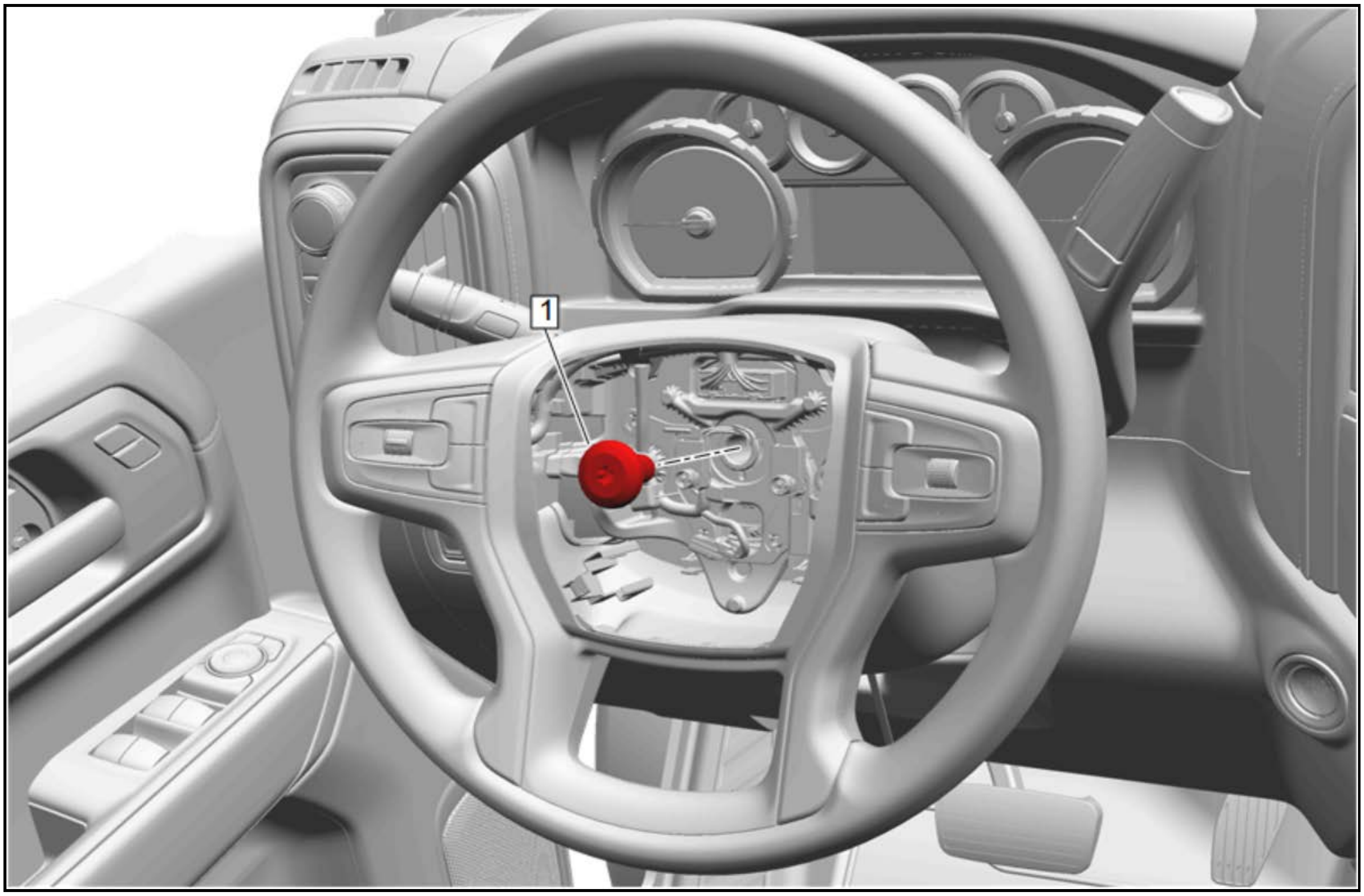
2. Use a flat bladed plastic trim tool to depress the steering wheel airbag access hole cover detents to remove the 2 steering wheel airbag access hole covers (1).



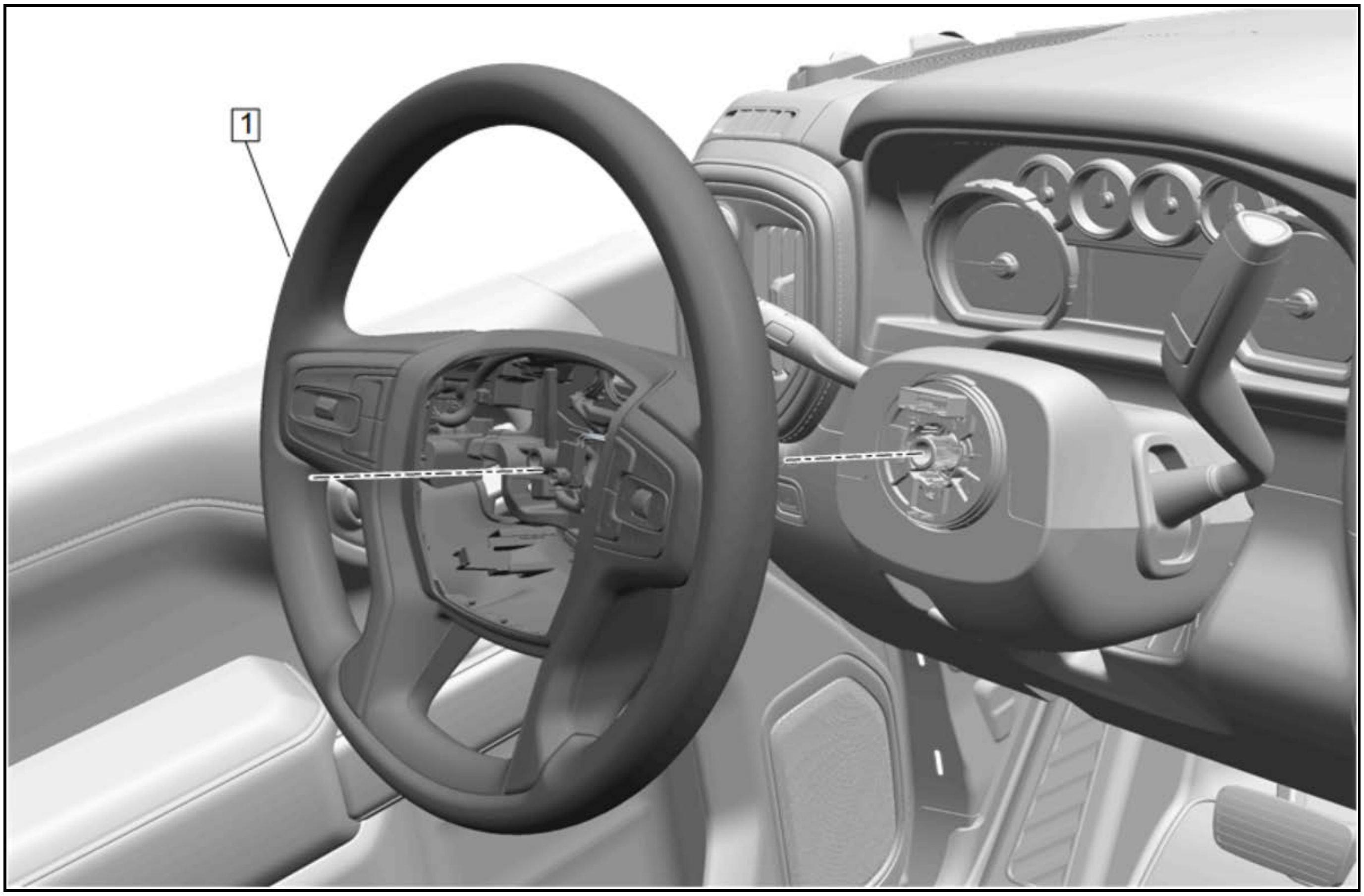
3. Steering Wheel Airbag Bolt (1) » Remove [2x]
4. Release the connector position assurance (CPA) retainer.
5. Disconnect the electrical connectors.
6. Steering Wheel Airbag (2) » Remove



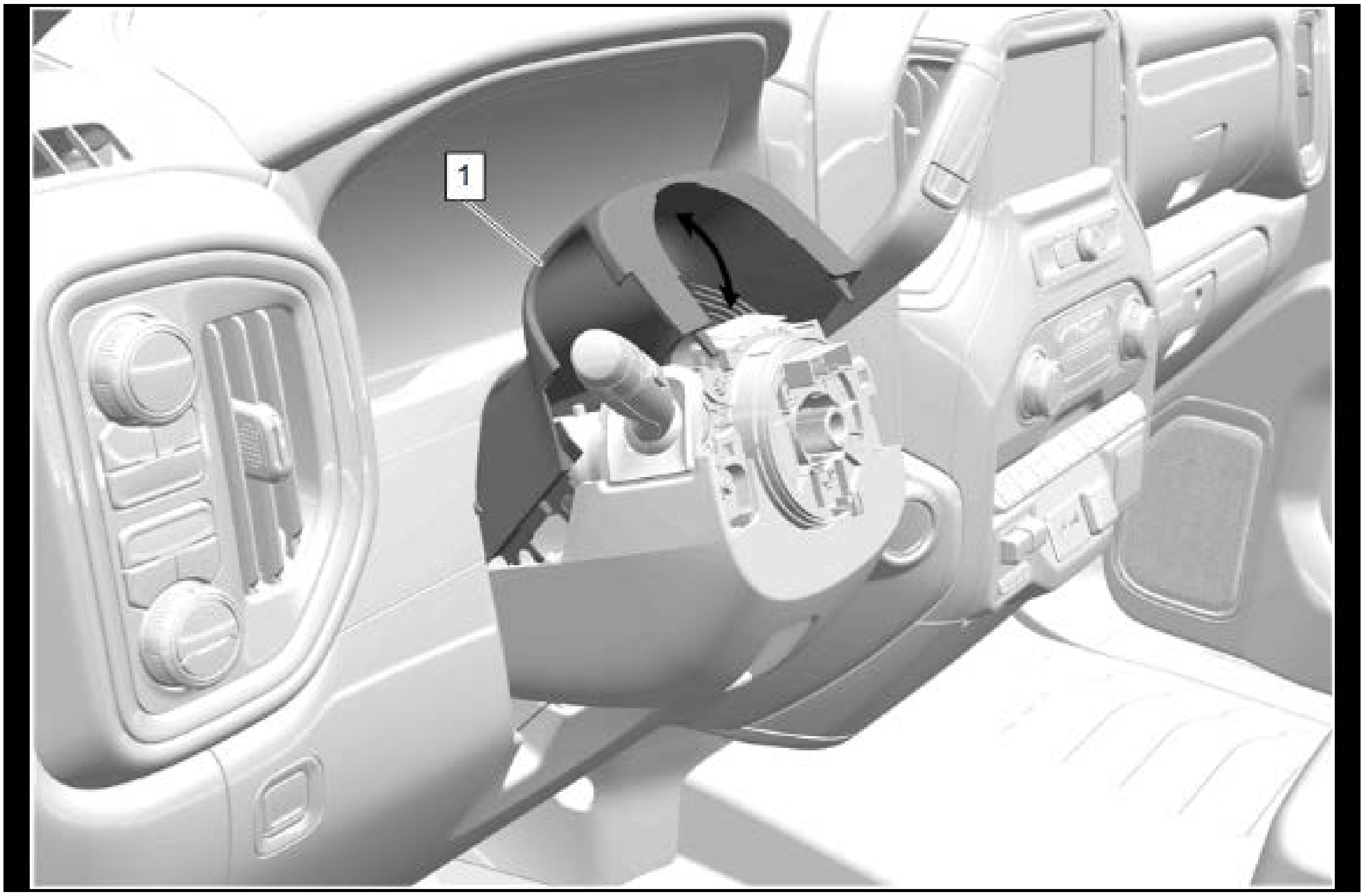
7. Loosen the steering wheel bolt (1) until 2 to 3 threads are still engaged.
8. Wiggle the steering wheel until the wheel disengages completely.



9. Steering Wheel Bolt (1) » Remove

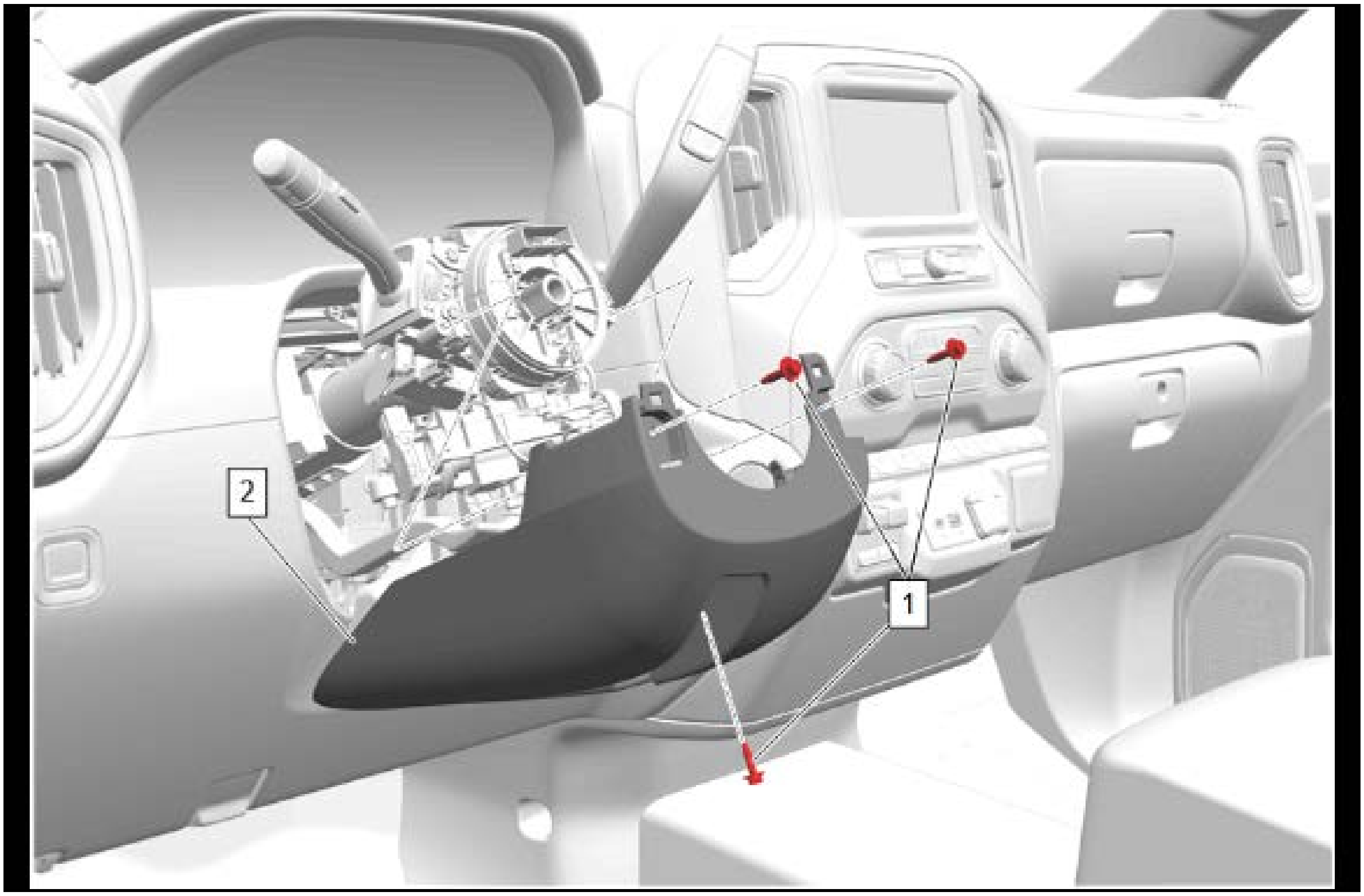


10. Steering Wheel (1) » Remove



6215006

11. Using a small plastic trim tool, separate the instrument panel steering column upper trim cover (1) from the instrument panel steering column lower trim cover.
12. Instrument Panel Steering Column Upper Trim Cover (1) » Reposition

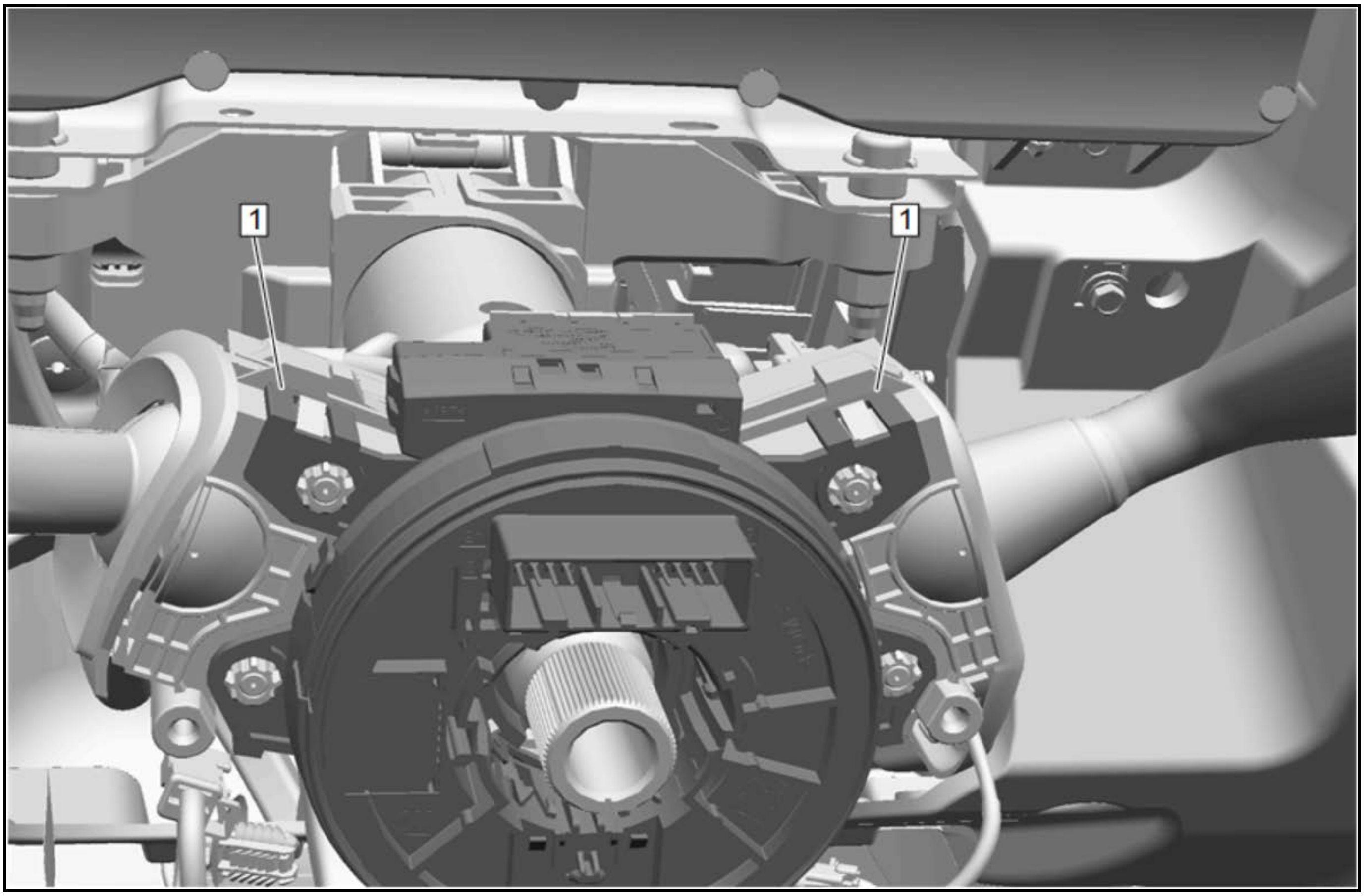


6215005

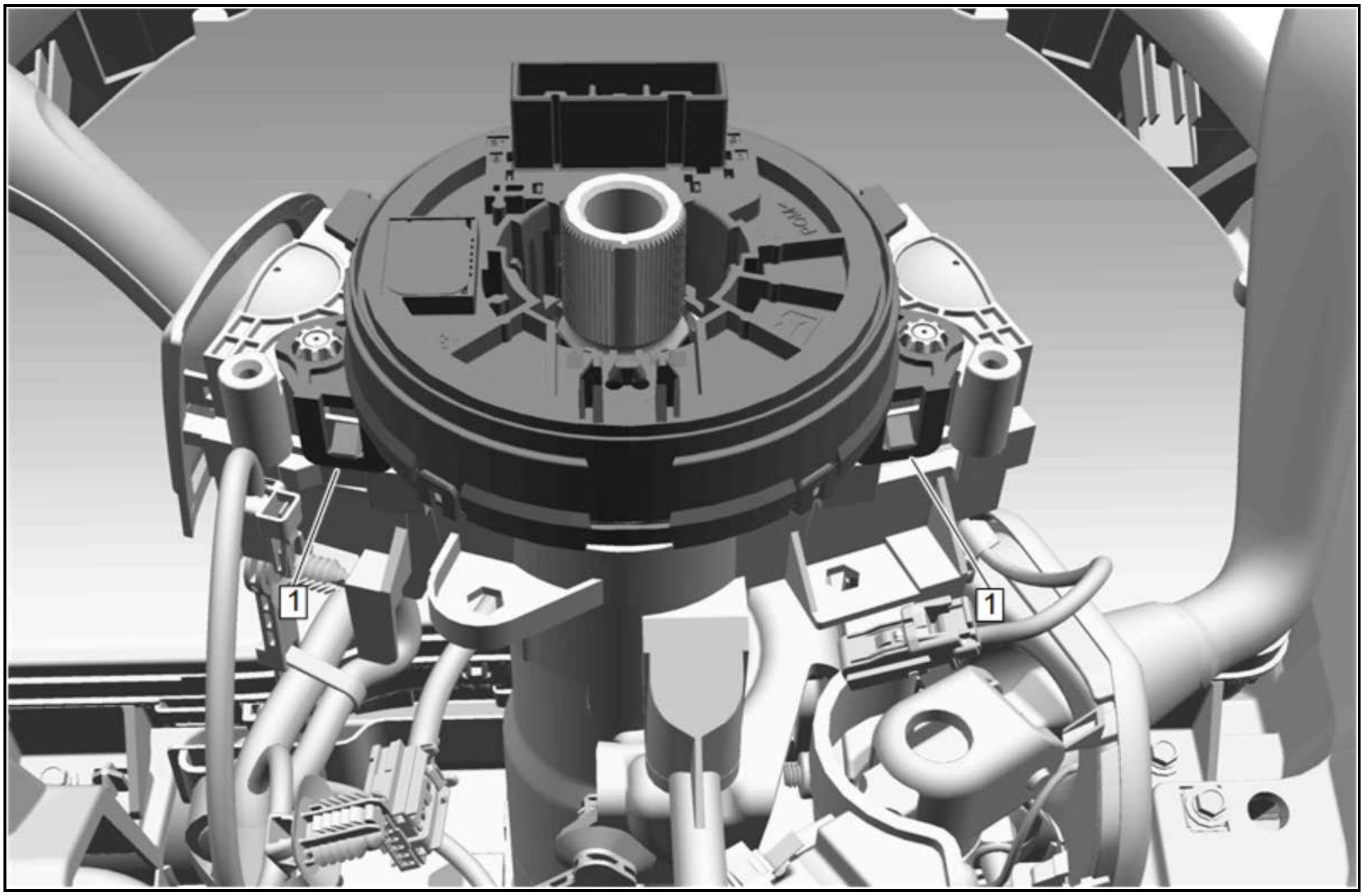
Note:

- Some components not shown for graphic clarity.
- Maneuver the instrument panel steering column lower trim cover around the steering column tilt and telescoping lever as necessary.

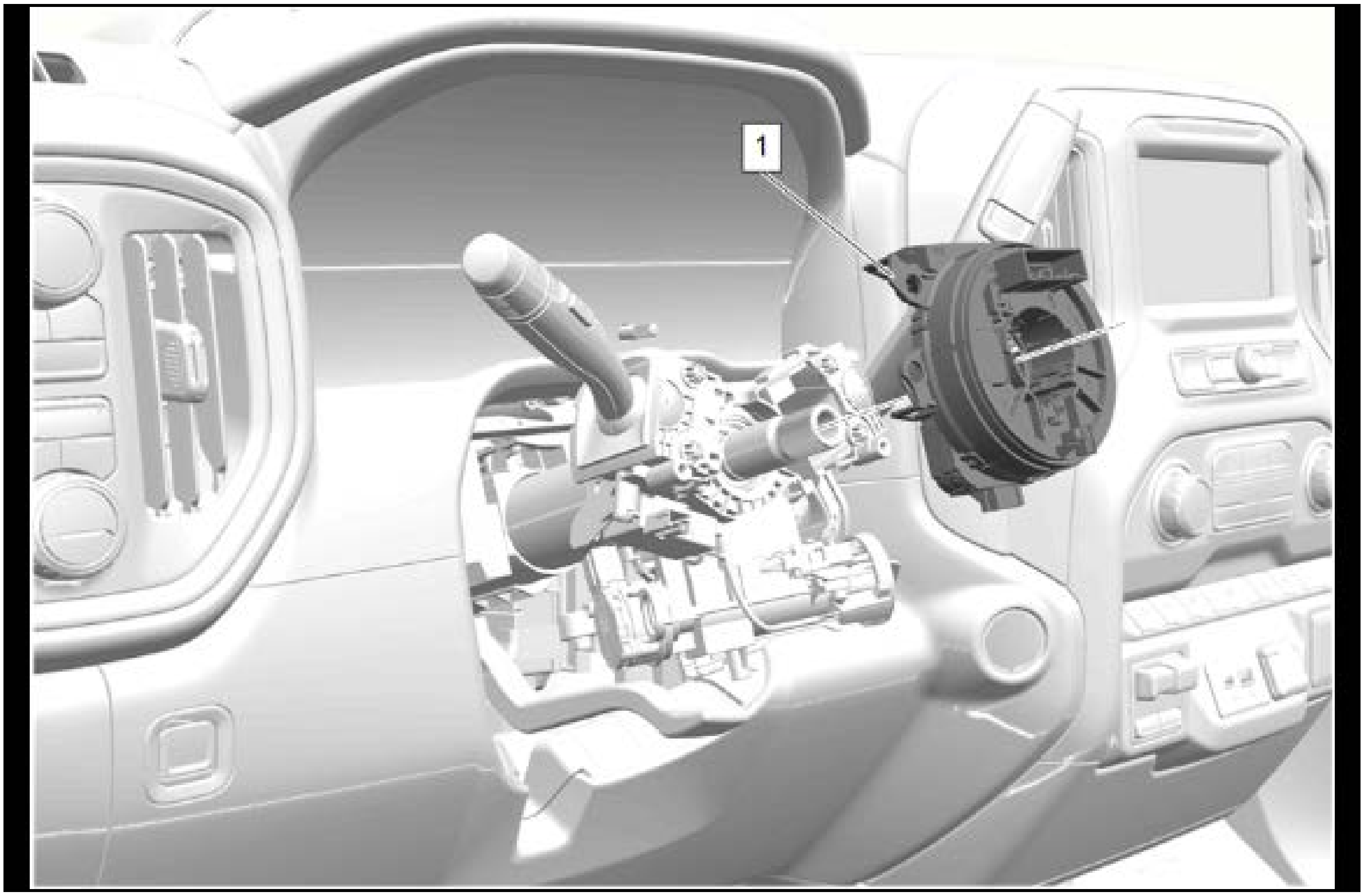
13. Instrument Panel Steering Column Lower Trim Cover Bolt (1) » Remove [3x]
14. Instrument Panel Steering Column Lower Trim Cover (2) » Remove



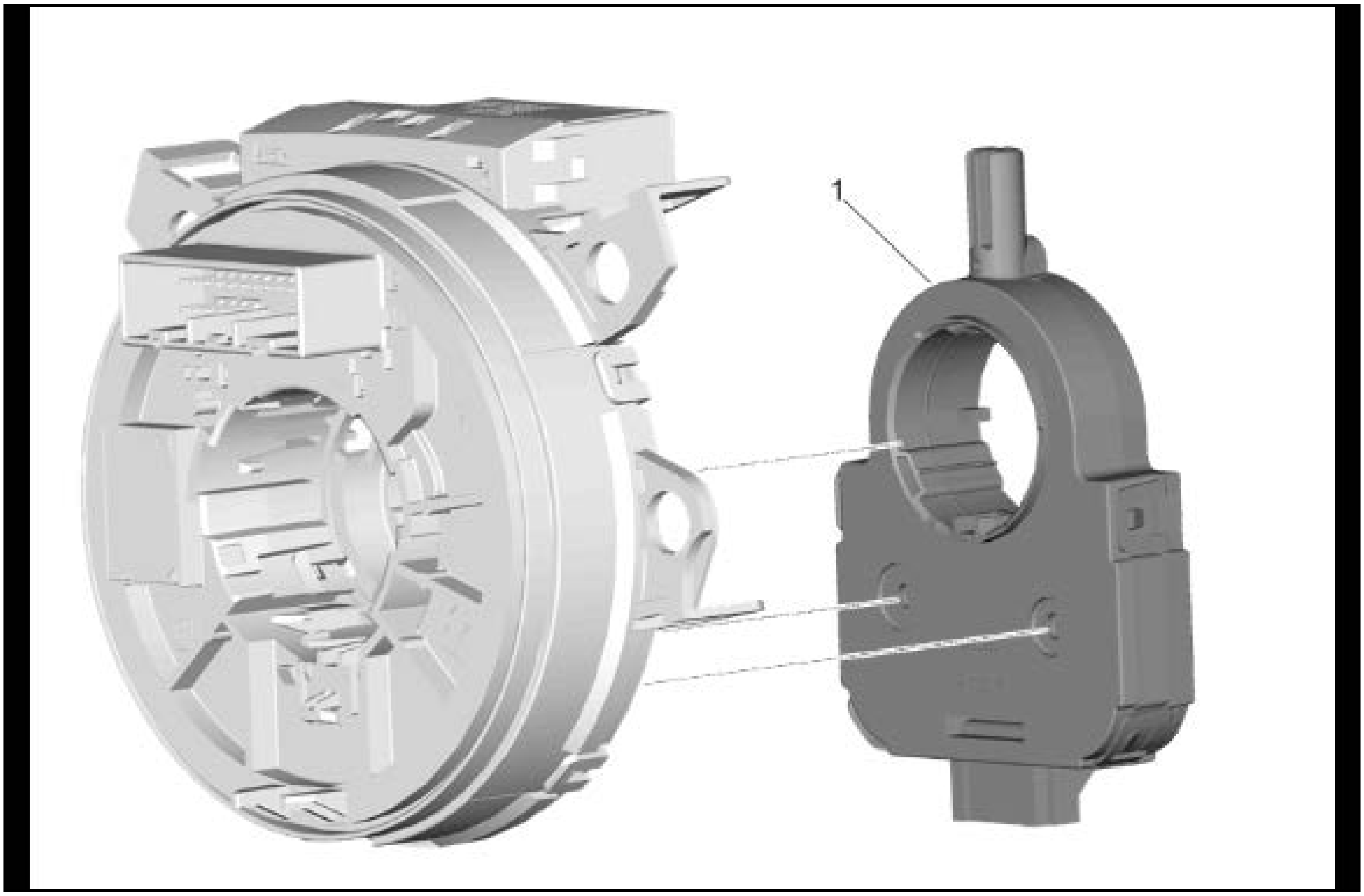
15. Disengage the steering wheel airbag coil upper retaining tabs (1).



16. Disengage the steering wheel airbag coil lower retaining tabs (1).

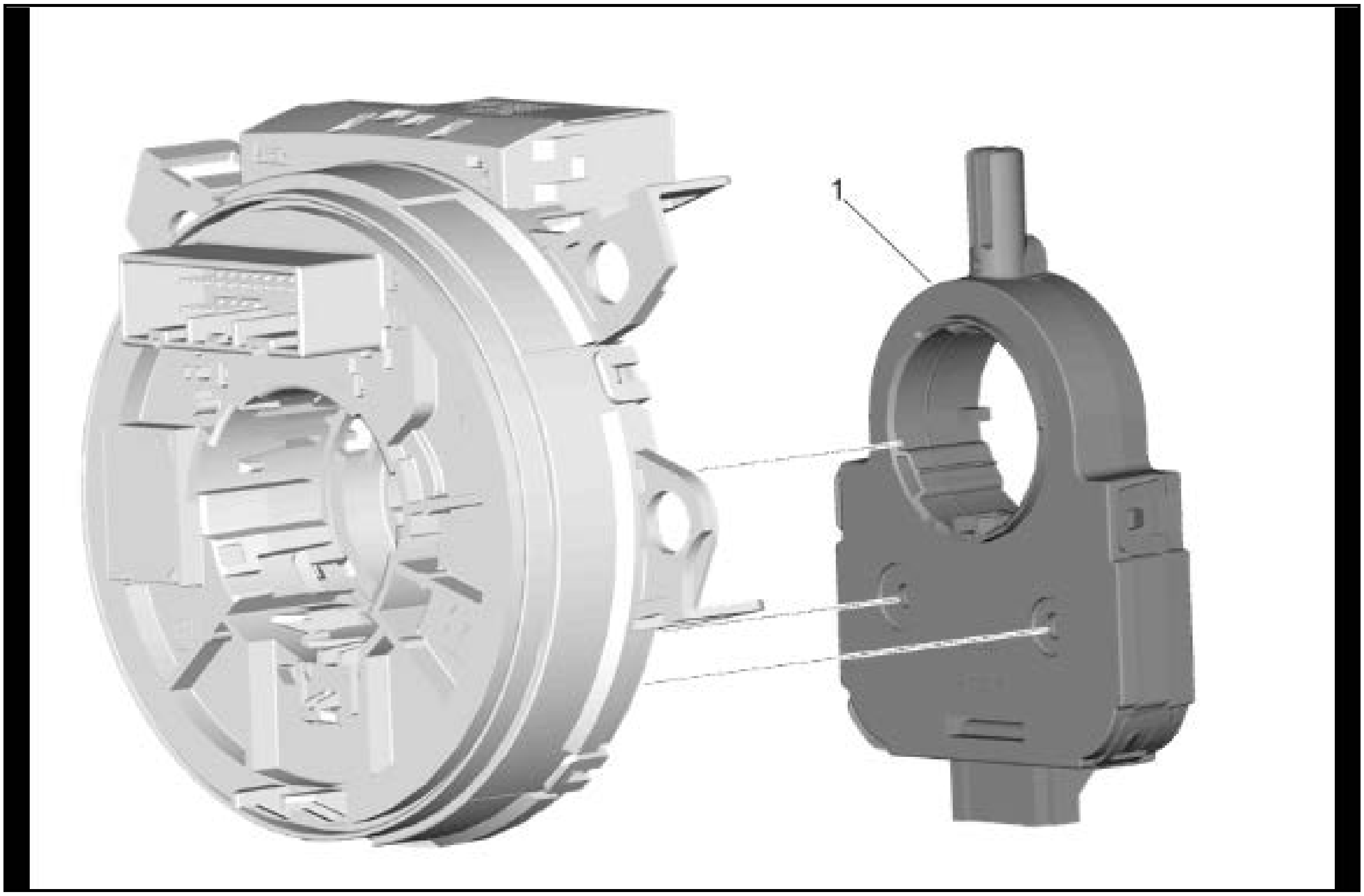


17. Disconnect the electrical connector.
18. Remove the steering wheel airbag coil and steering angle sensor module (1) as an assembly.



19. Remove the steering angle sensor module (1) by releasing the clips on the steering wheel airbag coil.

Installation Procedure



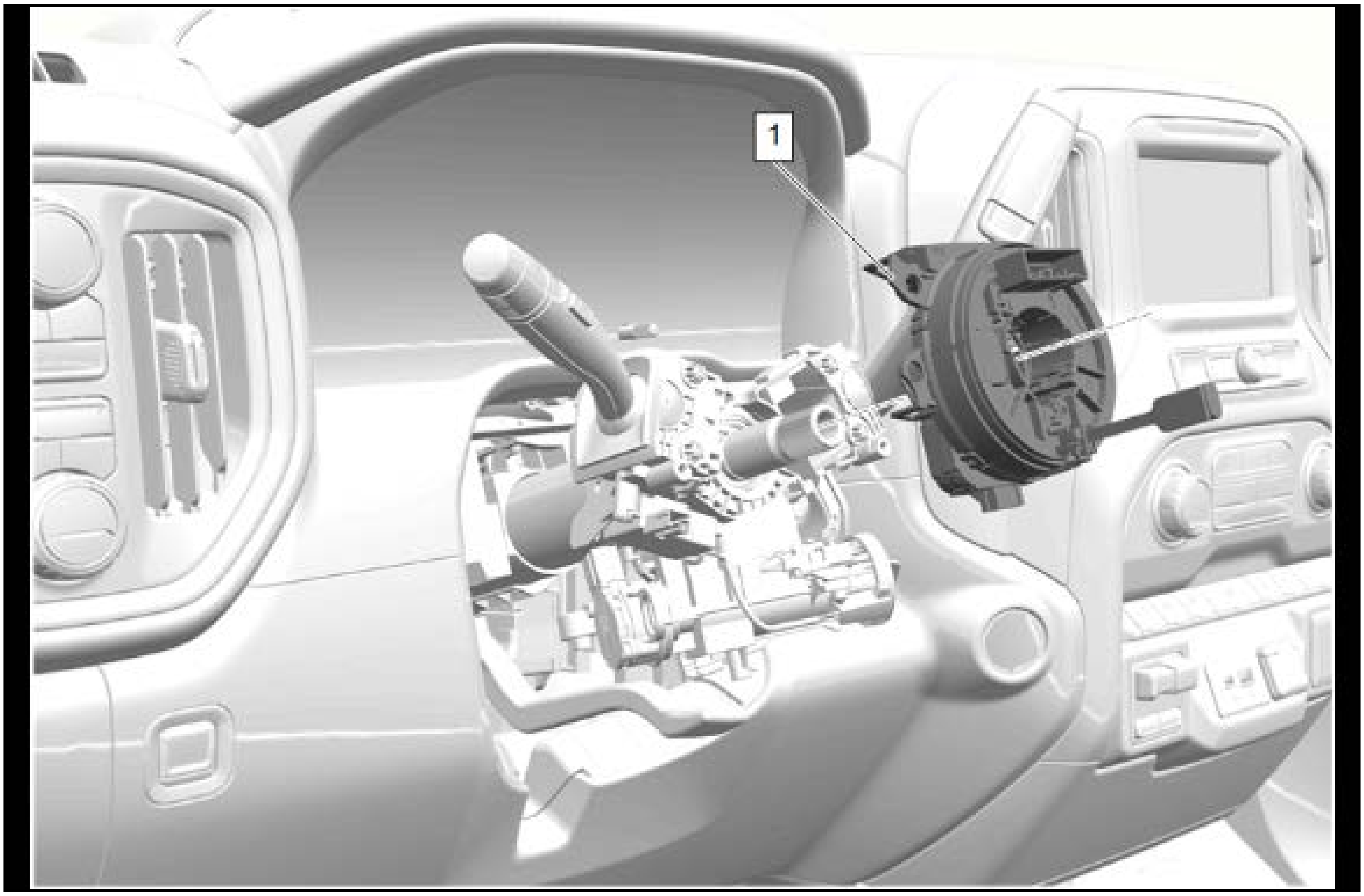
5525585

1. Install the steering angle sensor module (1).

Caution: SIO-ID=2052860 LMD=24-Jan-2008 The new SIR coil assembly will be centered. Improper alignment of the SIR coil assembly may damage the unit, causing an inflatable restraint malfunction.

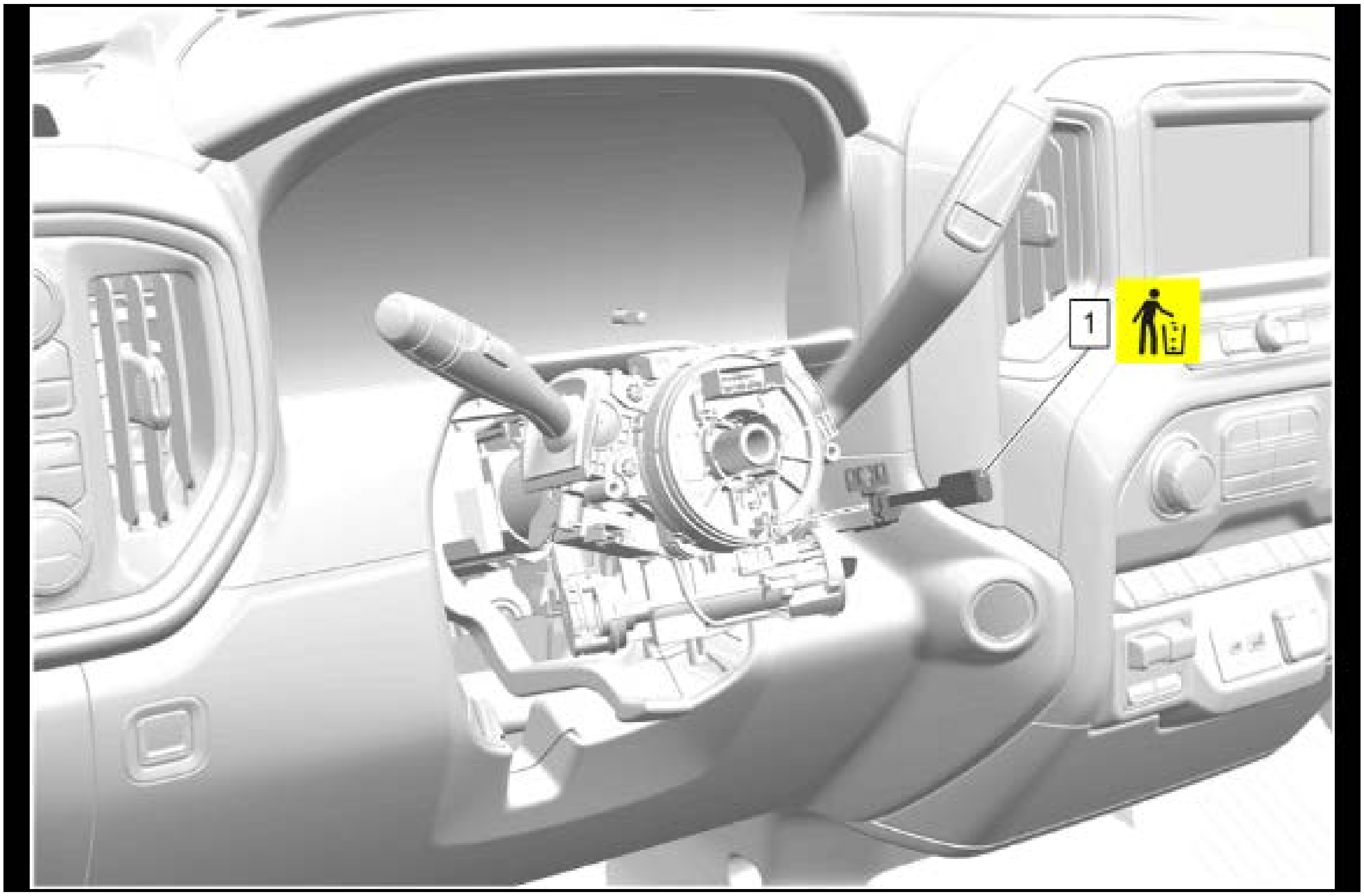
> **Note:** Do not remove the centering tab from the new SIR coil until the installation is complete. If the SIR coil does not come with a centering tab, you must center the SIR coil.

2. Ensure the steering wheel airbag coil is CENTERED during installation. *Steering Wheel Airbag Coil Centering on page 8-534*.

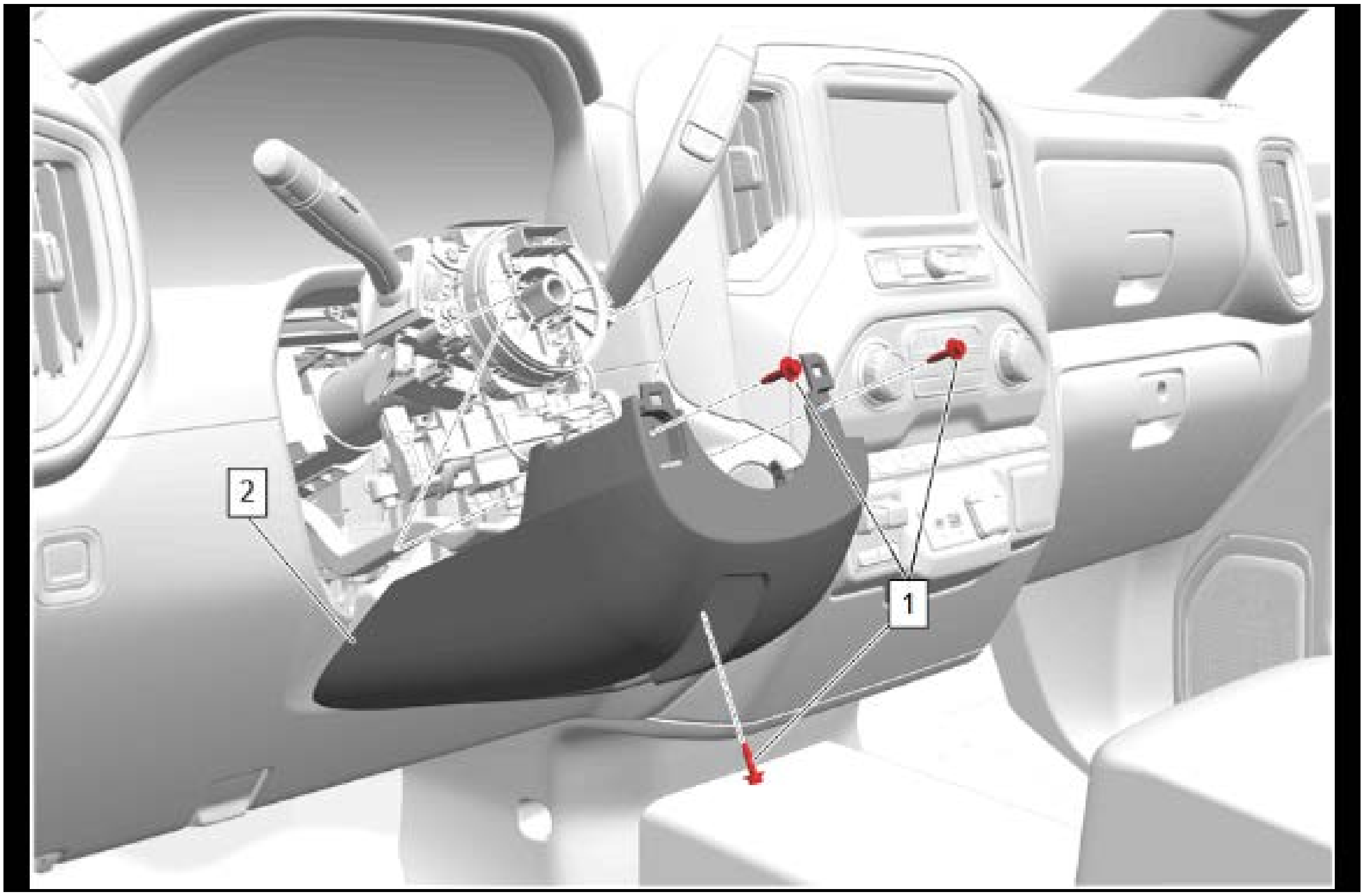


6215410

3. Install the steering wheel airbag coil and steering angle sensor module (1) as an assembly.
4. Connect the electrical connector.



5. Remove the steering wheel airbag coil centering tab (1) and DISCARD.

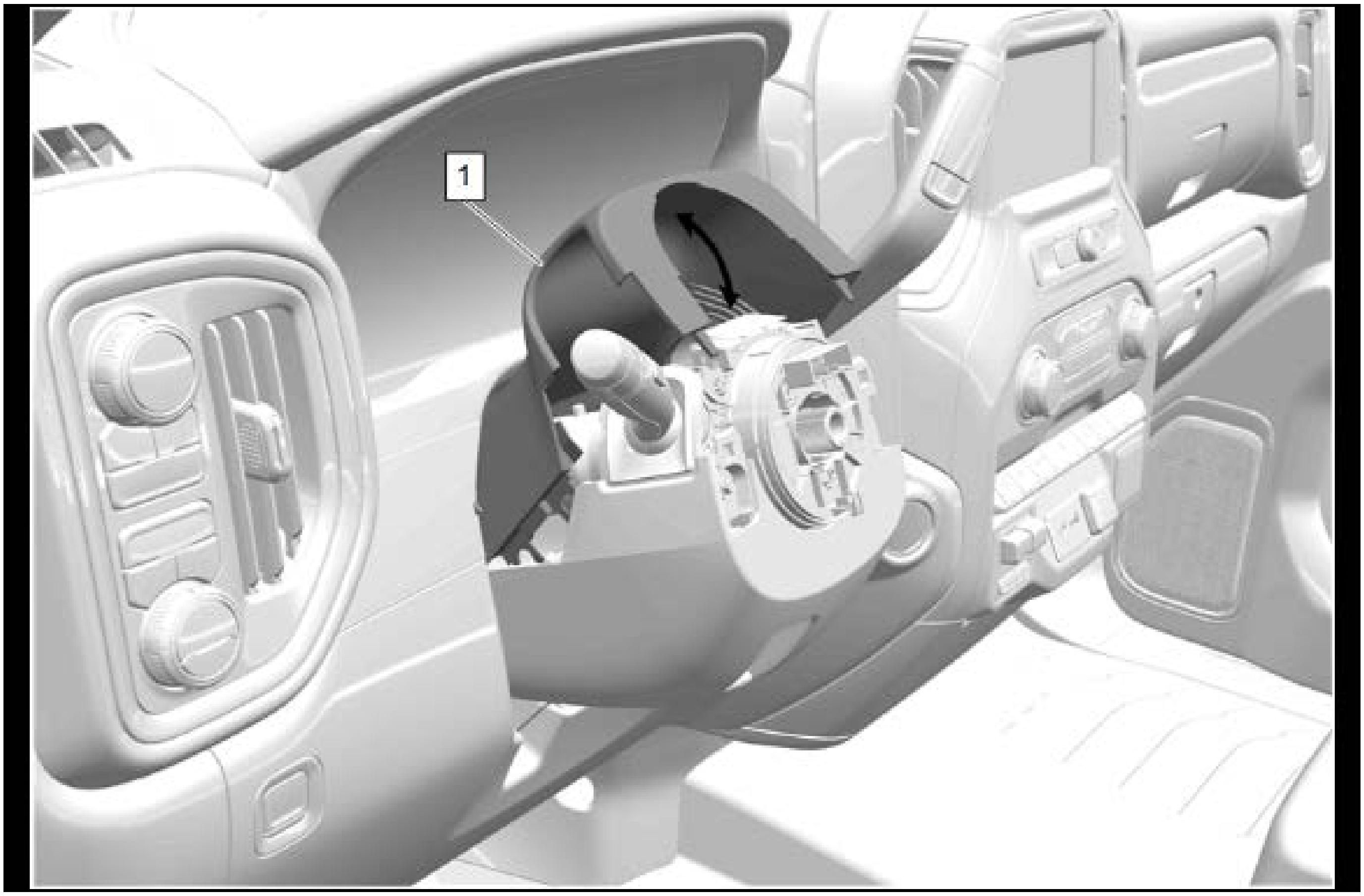


6215005

Note:

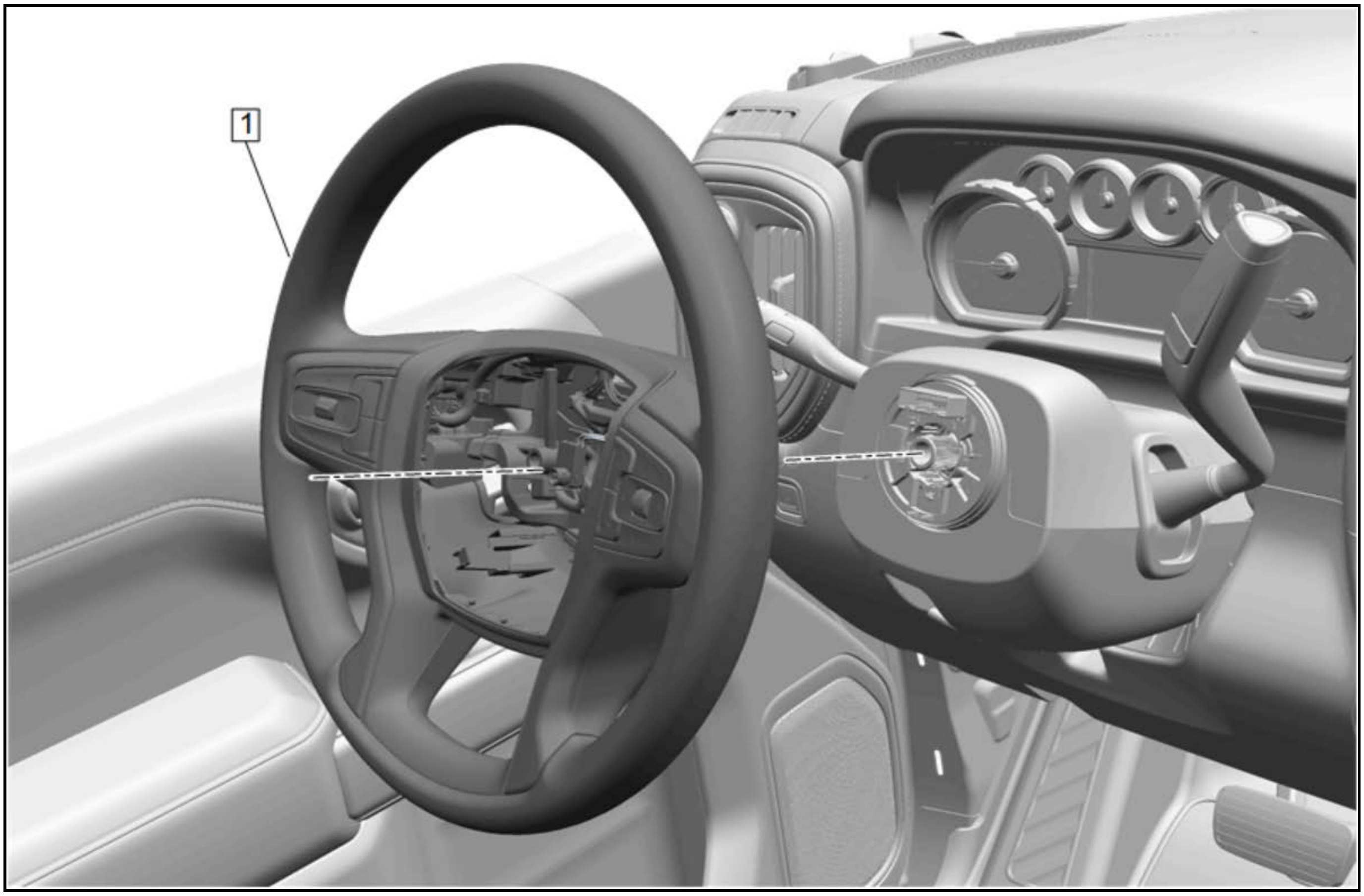
- Some components not shown for graphic clarity.
- Maneuver the instrument panel steering column lower trim cover around the steering column tilt and telescoping lever as necessary.

6. Instrument Panel Steering Column Lower Trim Cover (2) » Install
7. Instrument Panel Steering Column Lower Trim Cover Bolt (1) » Install and tighten [3x]

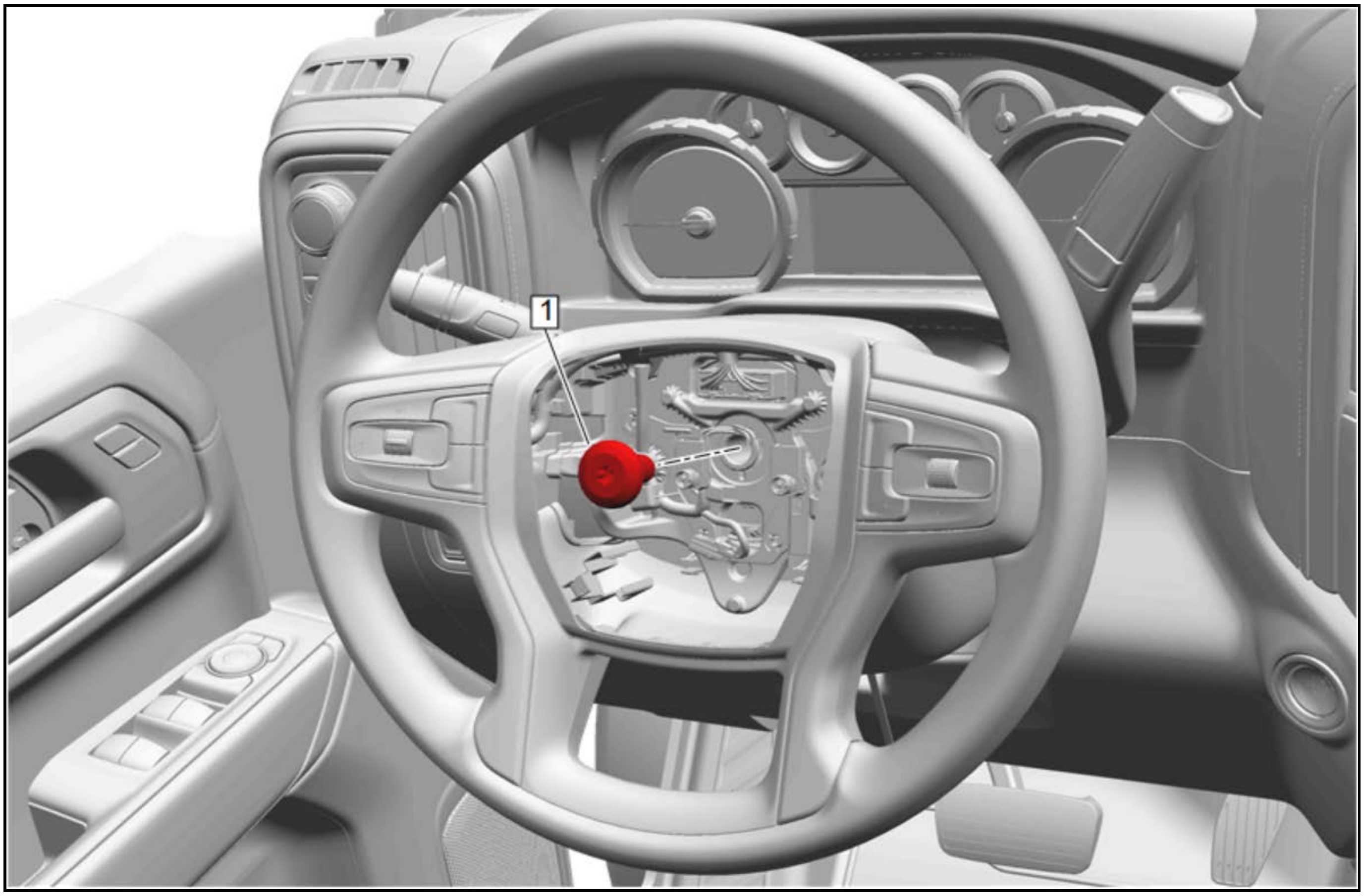


6215006

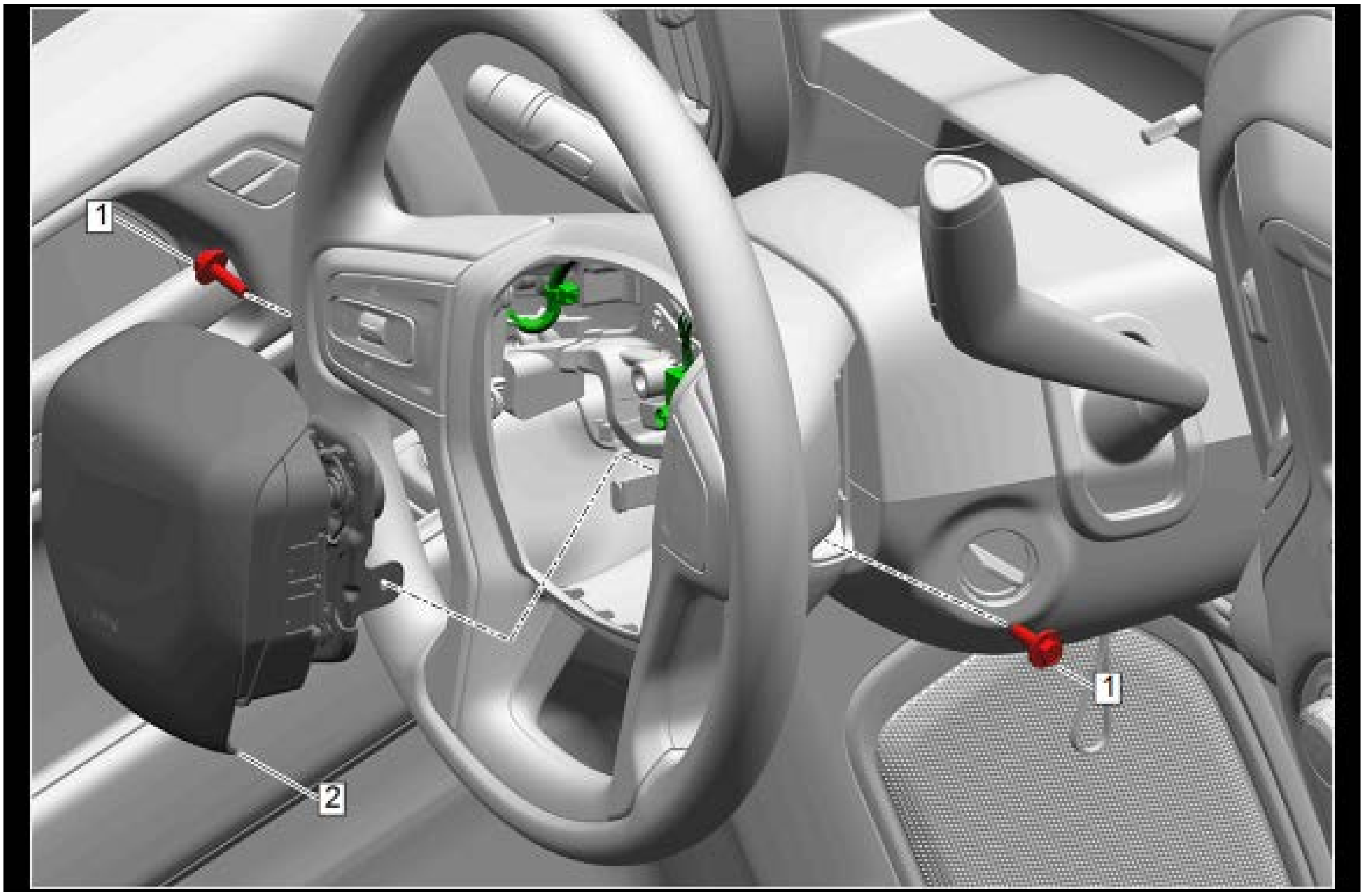
8. Secure the instrument panel steering column upper trim cover (1) to the instrument panel steering column lower trim cover.



9. Steering Wheel (1) » Install



10. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    - 10.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    - 10.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    - 10.3. Remove loose debris from internal and external threads using compressed air.
    - 10.4. Apply liquid thread locking adhesive in a strip along half of the length of the external threads, starting at the tip, just prior to installation.
11. Steering Wheel Bolt (1) » Install and tighten

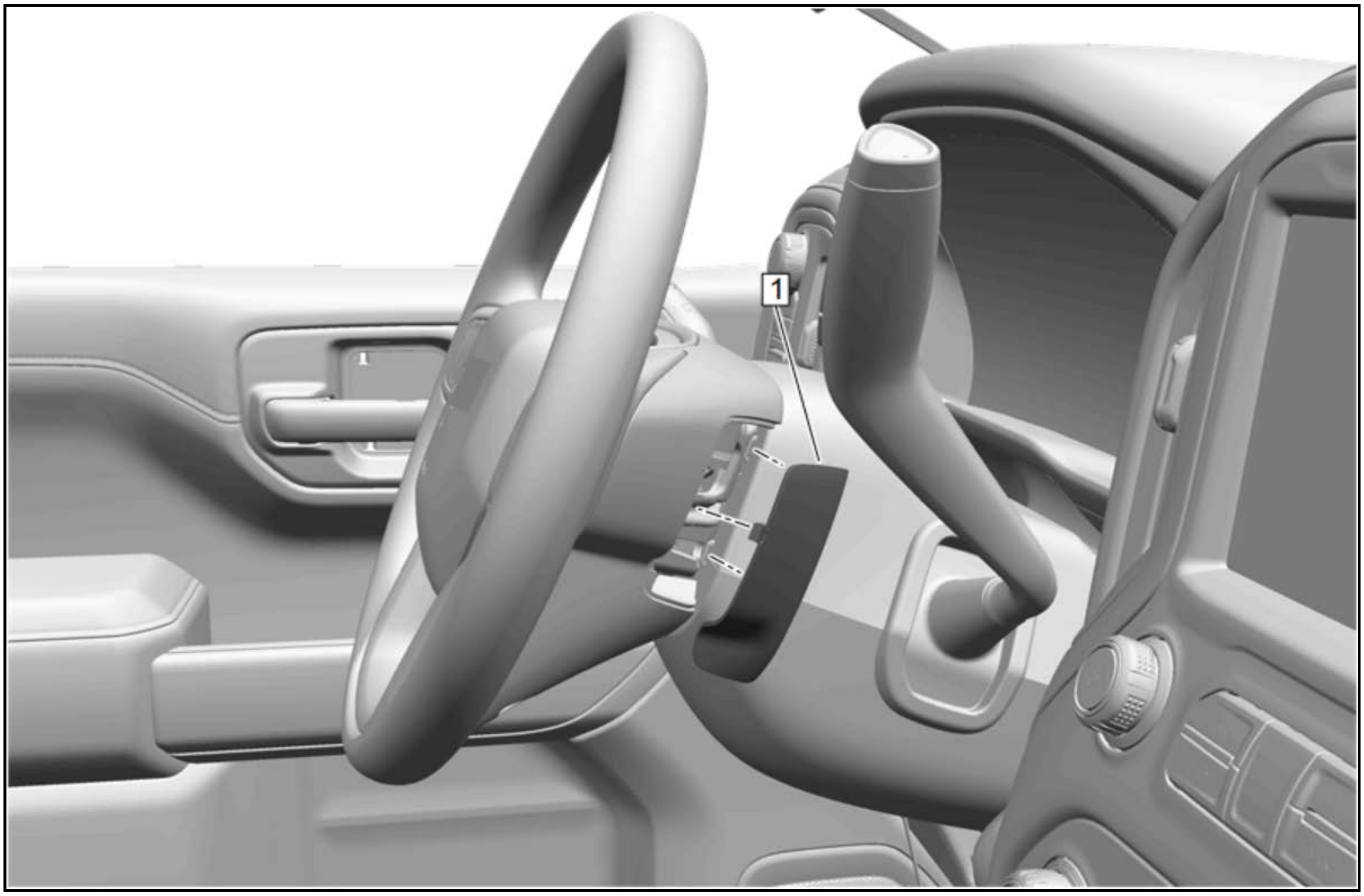


5042983

12. Connect the electrical connectors.
13. Install any connector position assurance (CPA) devices or secondary locks.

Warning: SIO-ID=3513529 LMD=11-Feb-2019 ***After installation of the steering wheel airbag module to the steering wheel, slightly pull the module outward. If there is no give on the airbag module then it is secured correctly. If the airbag module is not fully attached personal injury could result.***

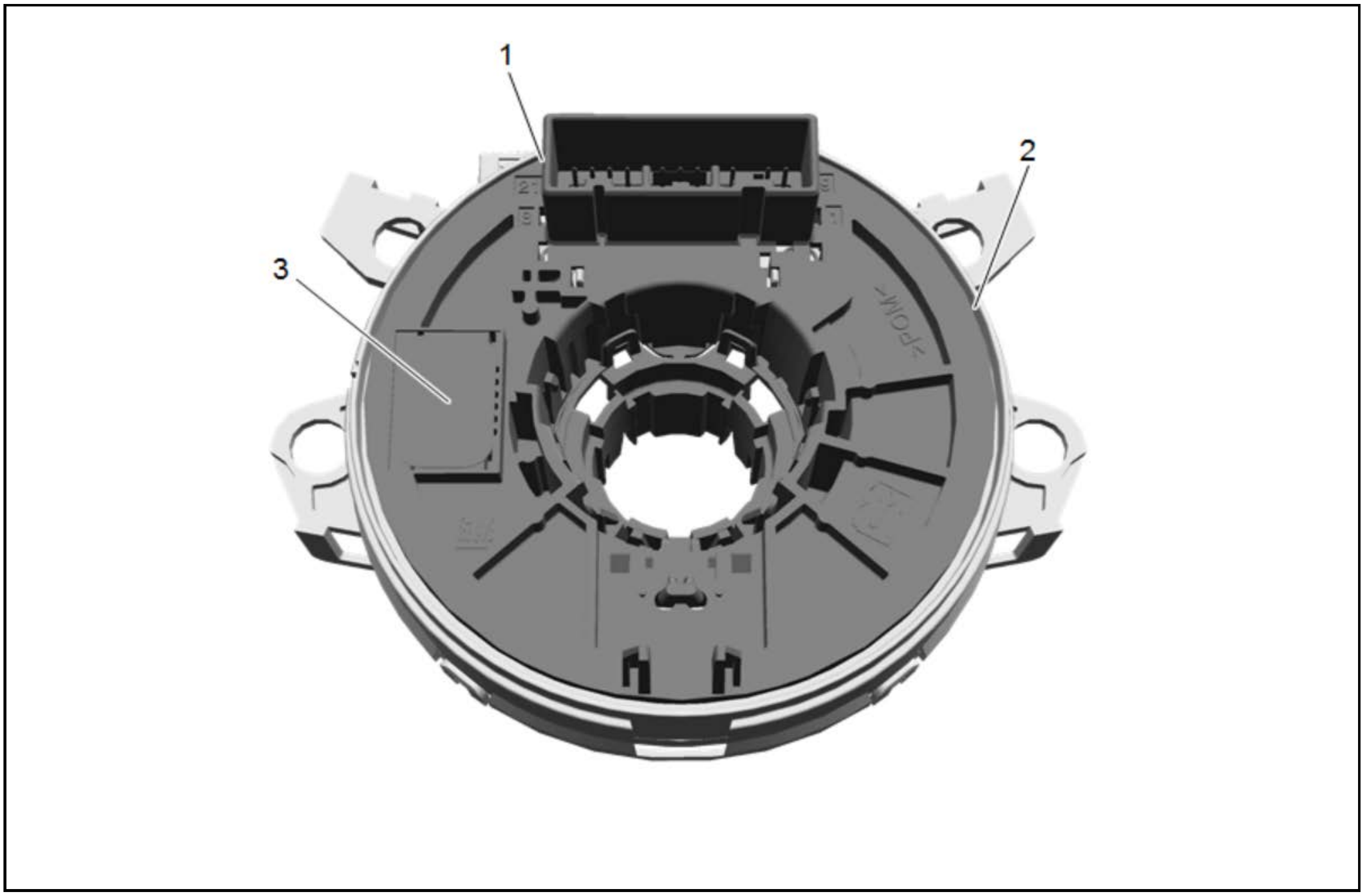
14. Steering Wheel Airbag (2) » Install
15. Steering Wheel Airbag Bolt (1) » Install and tighten [2x] — *Fastener Specifications on page 8-427*



16. Install the 2 steering wheel airbag access hole covers (1).
17. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

Steering Wheel Airbag Coil Centering

Object-ID=5019775 Owner=Spires, Justin LMD=04-Mar-2020 LMB=Spires, Justin

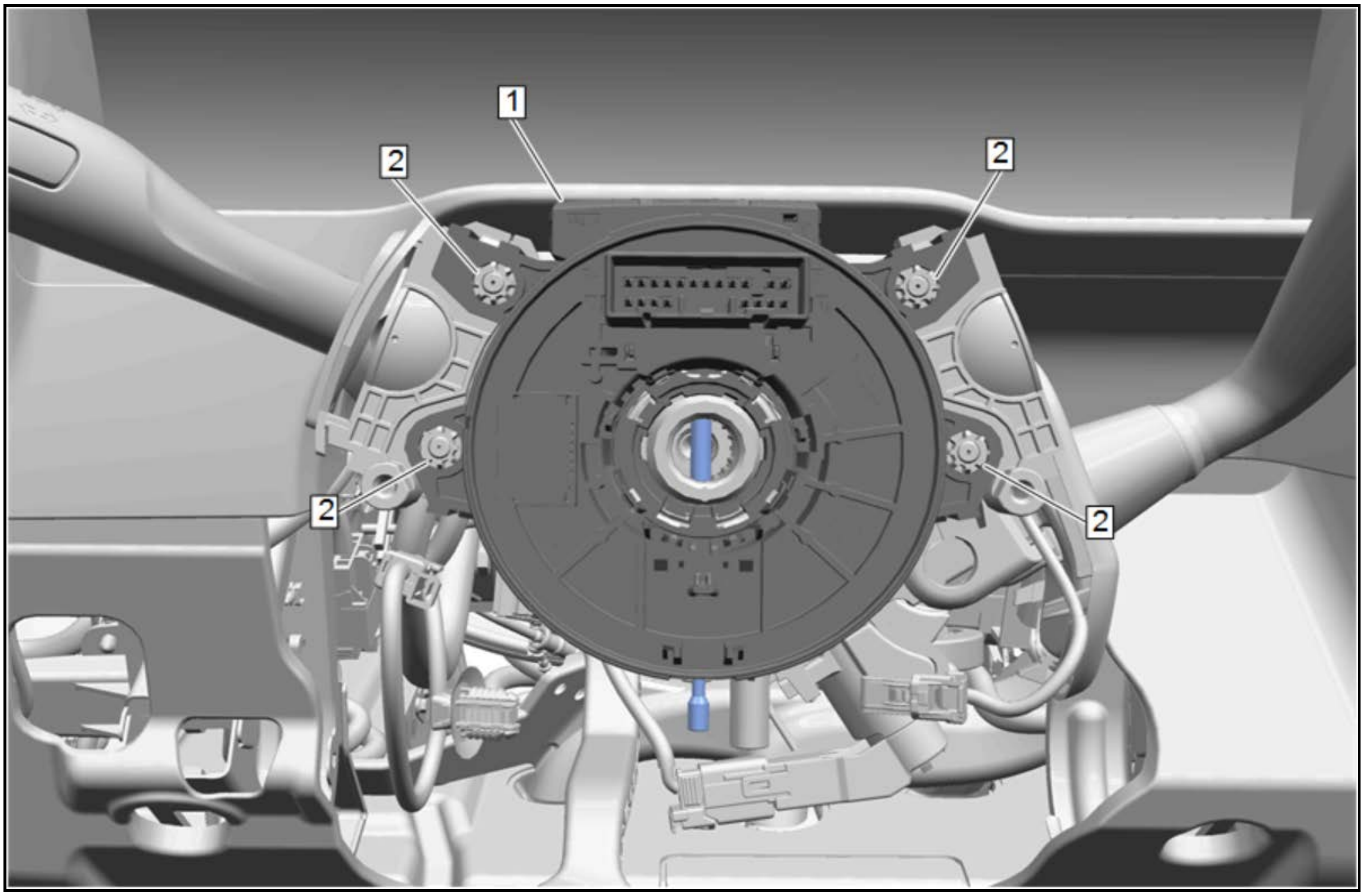


5019593

1. Hold the steering wheel airbag coil with the uplead connector (1) at the 12 o’clock position..
2. Rotate the steering wheel airbag coil hub (2) gently clockwise until the coil ribbon stops.

Caution: SIO-ID=2305061 LMD=14-Jul-2009 Do not rotate the SIR coil more than 3 turns counterclockwise from the center position. There is no stop in the counterclockwise direction. Rotating the SIR coil more than 3 turns counterclockwise from the center position will damage the SIR coil, causing an inflatable restraint malfunction.

3. From the clockwise stop, rotate the steering wheel airbag coil hub (2) slowly counterclockwise approximately 2.9 turns.
4. Place the uplead connector (1) in the 12 o'clock position.
5. Ensure the striped flat wire cable loop appears in the centering window (3). This is the CENTER position.



5019722

6. Align the steering wheel airbag coil (1) with the turn signal bracket pins (2) and slide the steering wheel airbag coil onto the steering shaft assembly.

Instrument Panel Airbag Replacement

Object-ID=5630550 Owner=Schaller, Dawn LMD=15-Sep-2020 LMB=McMillan, Tim

Warning: SIO-ID=2050303 LMD=22-Jan-2008 ***When carrying a live inflator module, make sure the bag opening is pointed away from you. This minimizes the chance of injury in the case of an accidental deployment. Never carry the inflator module by the wires. Never carry the inflator module by the connector on the underside of the module.***

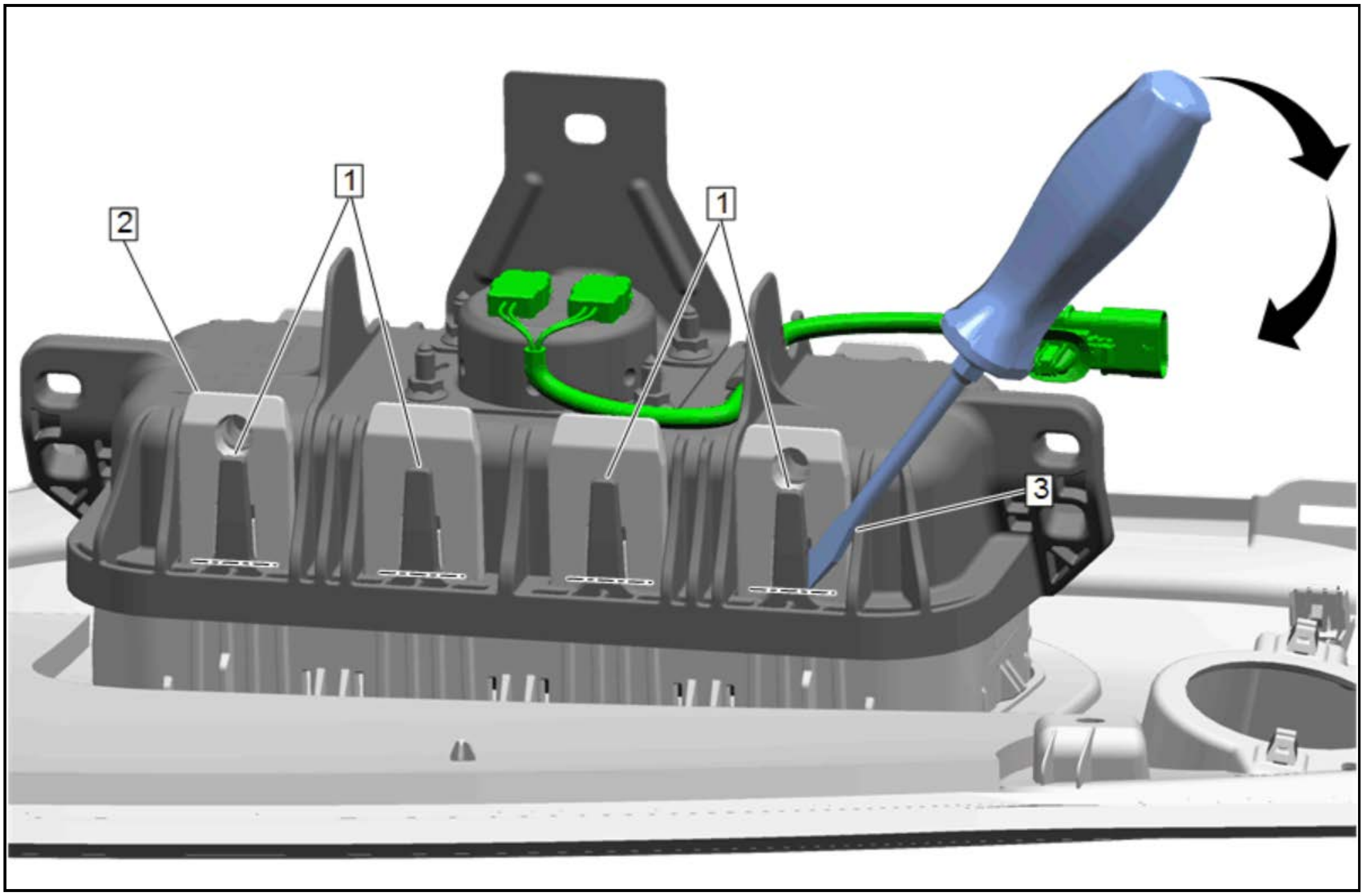
Make sure that the bag and trim cover are facing up whenever you place a live inflator module on any surface. This is necessary to provide a free space for the bag to expand in the unlikely event of accidental deployment.

Never rest the steering column assembly on the steering wheel with the inflator module face down, and the column vertical. This may result in personal injury.

Caution: SIO-ID=5276853 LMD=12-Mar-2019 Use extreme care not to damage the airbag chute which is integral to the instrument panel. Failure to do so will result in unwanted instrument panel component replacement.

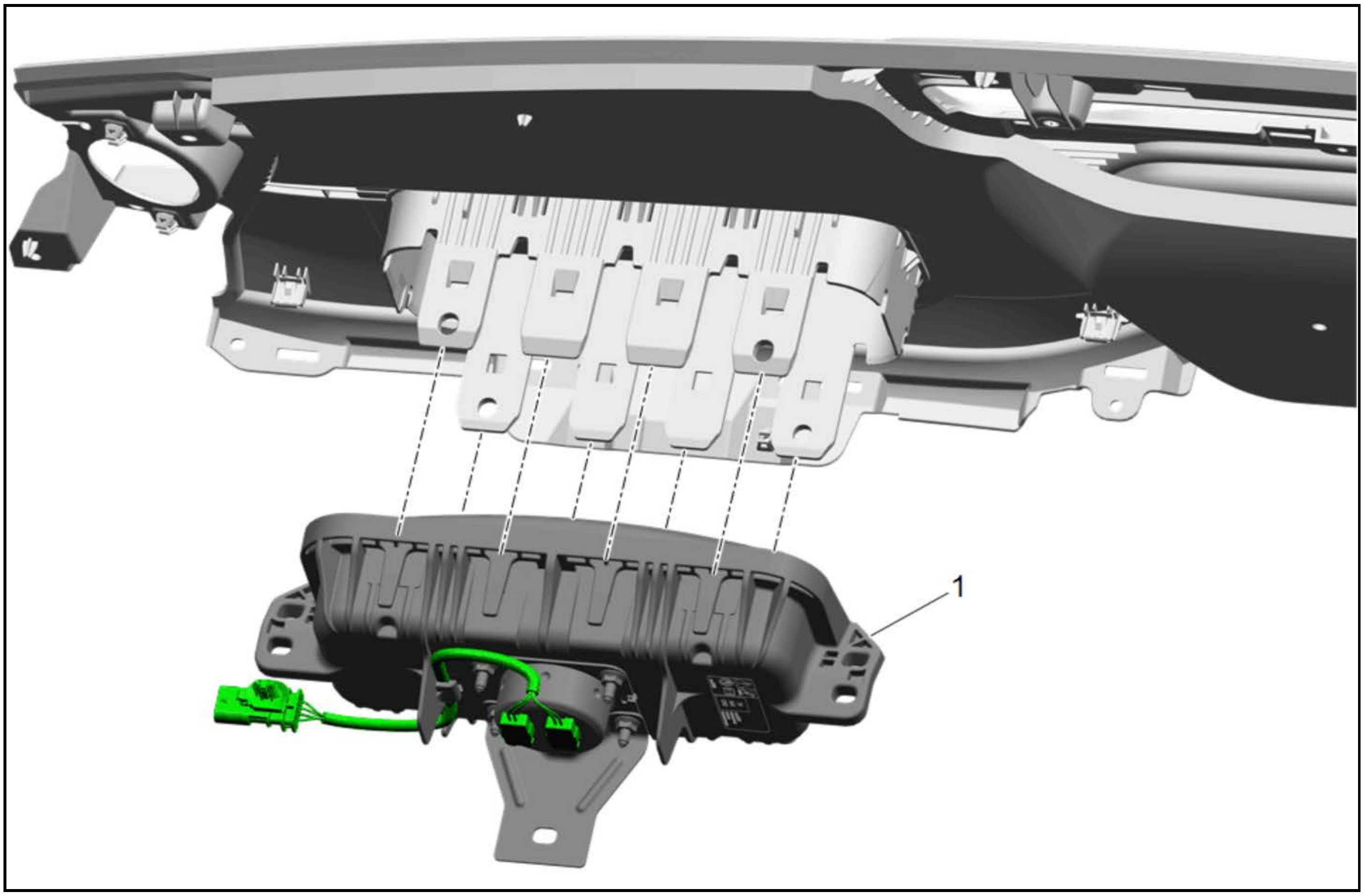
Removal Procedure

1. Disable the SIR system. SIR Disabling and Enabling on page 8-481
2. Instrument Panel » Remove



5256638

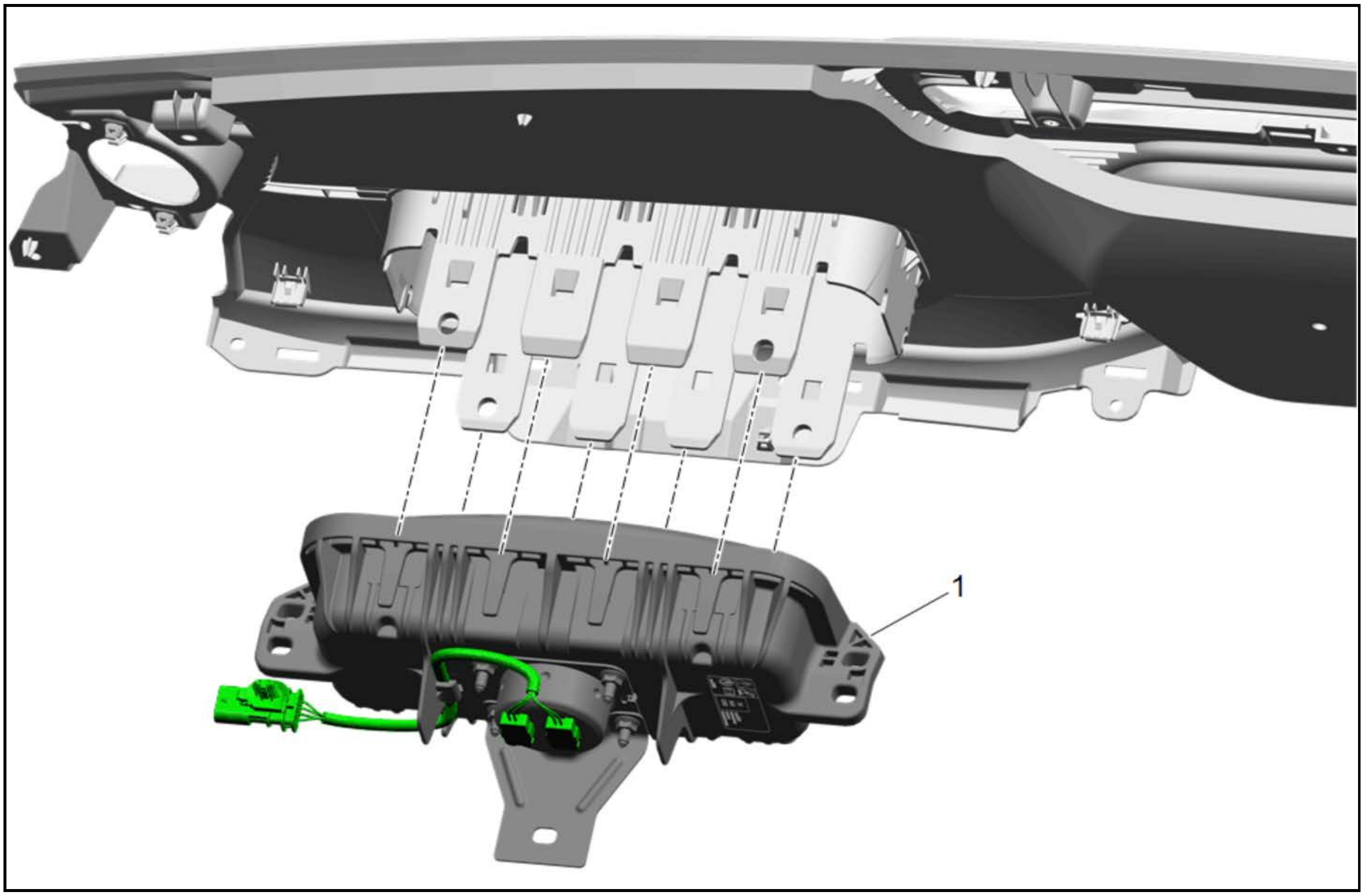
3. Insert the flat tip driver (3) in between the airbag chute (2) and the air bag module hook (1) at the dotted line or base of hook.
4. Tilt the flat tip driver forward until the air bag module hooks (1) break or bend enough to relieve the tension and allow for easier removal of the airbag from the chute.



5001964

5. Instrument Panel Airbag (1) » Remove
6. *Inflatable Restraint Module Handling and Scrapping on page 8-659*

Installation Procedure



5001964

Warning: SIO-ID=3613310 LMD=11-Feb-2019 ***Never install the passenger airbag module into the instrument panel assembly that airbag module chute is cut. This may cause incorrect deployment when the passenger airbag is deployed.***

1. Position the passenger air bag module (1) on the air bag chute.

Caution: SIO-ID=3613314 LMD=11-Feb-2019 Make sure that the passenger airbag is installed into the chute completely.

2. Push the passenger airbag module (1) into the airbag chute until the hooks of airbag module are seated completely.
3. Instrument Panel » Install
4. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

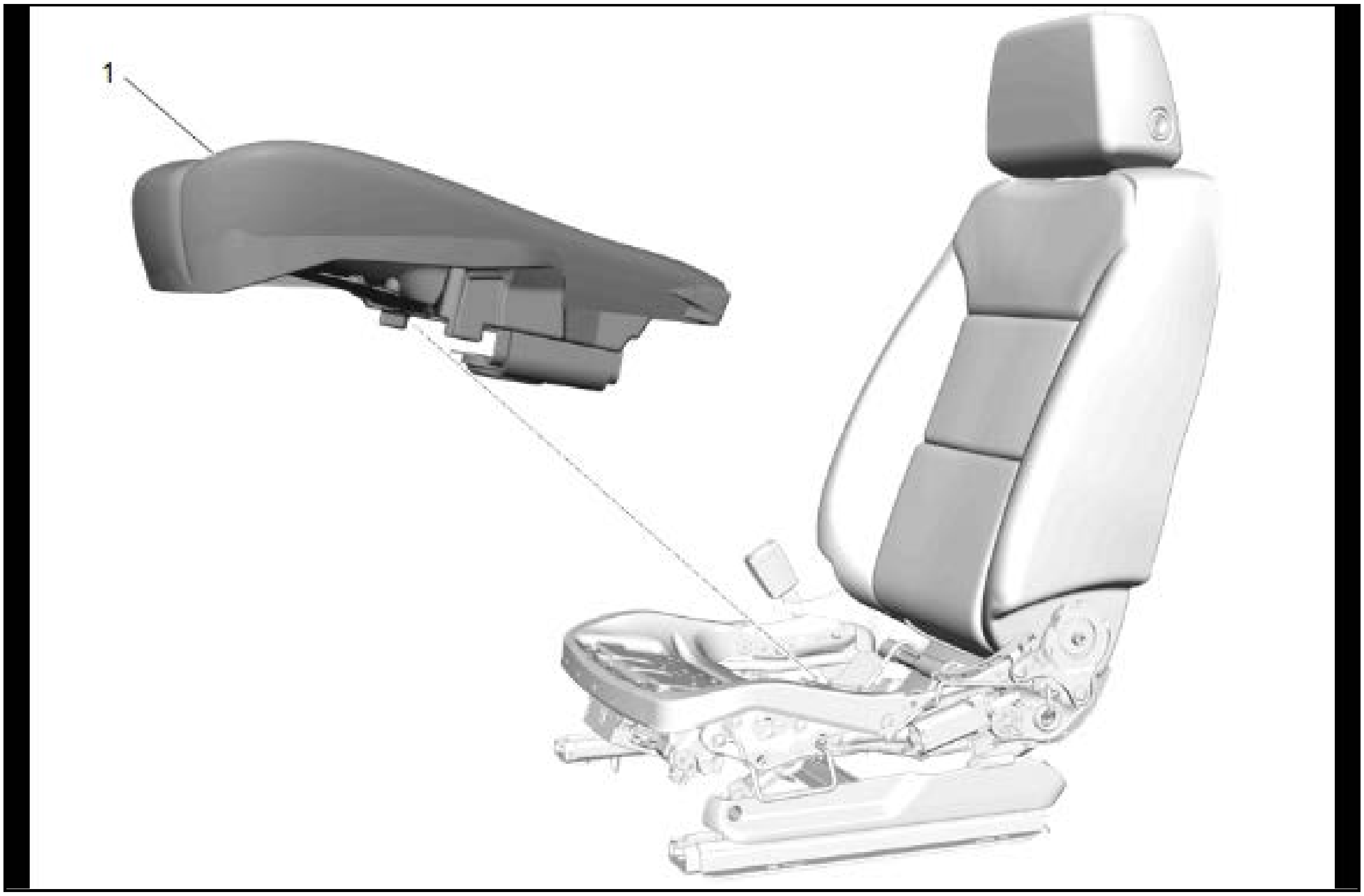
Airbag Front Passenger Presence Module Replacement

Object-ID=5642300 Owner=Palkovitz, John LMD=31-Mar-2021 LMB=Schaller, Dawn

Warning: SIO-ID=2051045 LMD=10-Jun-2020 ***To avoid personal injury, perform a passenger presence sensor rezeroing/ learn on the passenger presence system whenever you remove or replace the seat cushion trim. Failure to do so may cause the system to malfunction.***

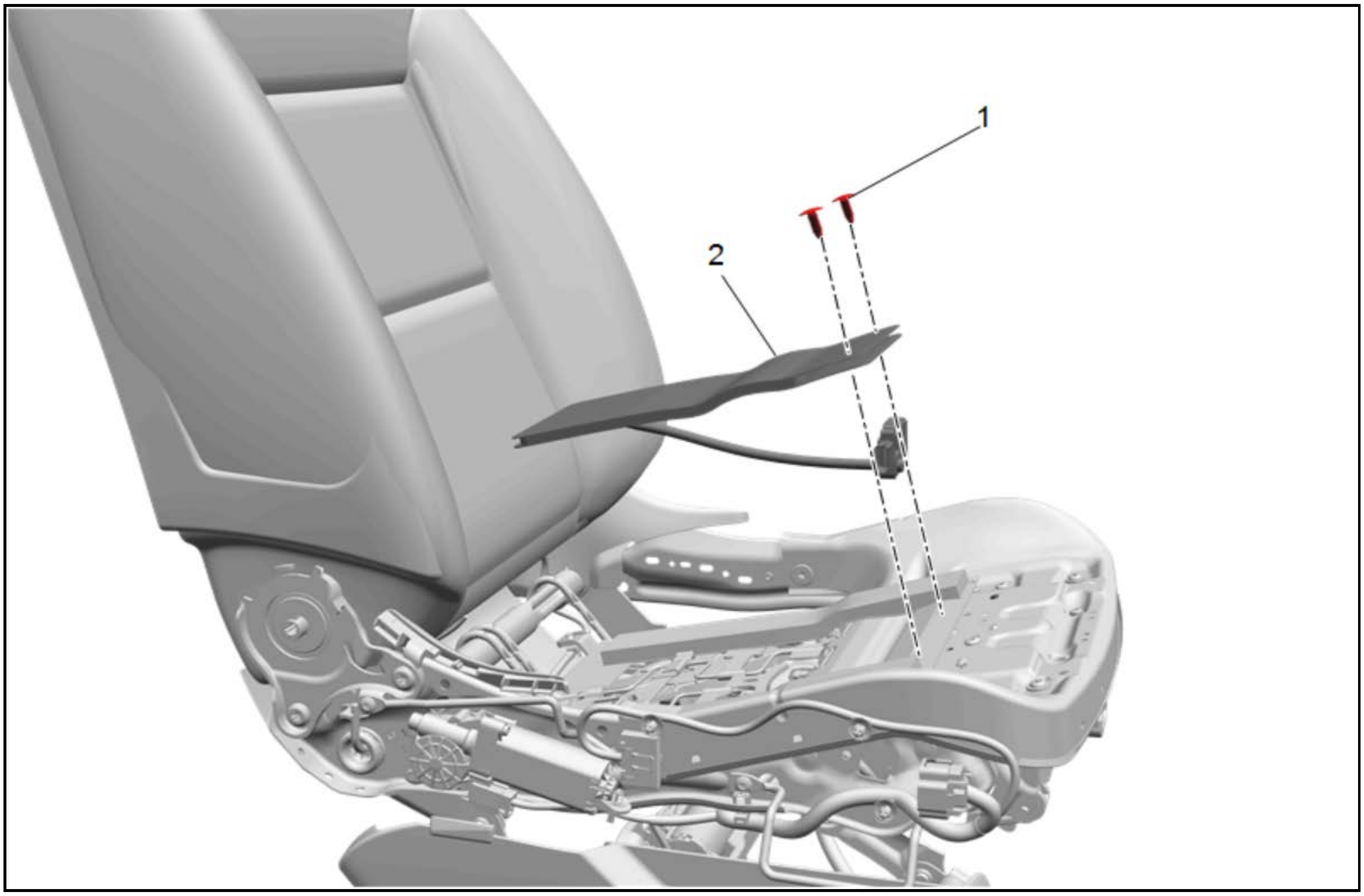
Warning: SIO-ID=2051042 LMD=16-Jul-2020 ***The passenger seat cushion assembly is serviced in a kit with the airbag front passenger presence module, cushion pad (and if equipped, heat mat, vent mat, vent mat support, comfort pads). All components in the service kit are assembled and calibrated as a unit and must be replaced as a complete assembly to prevent possible injury to the occupant. Using only some of the components in the service kit will cause the passenger presence system to operate improperly.***

Removal Procedure



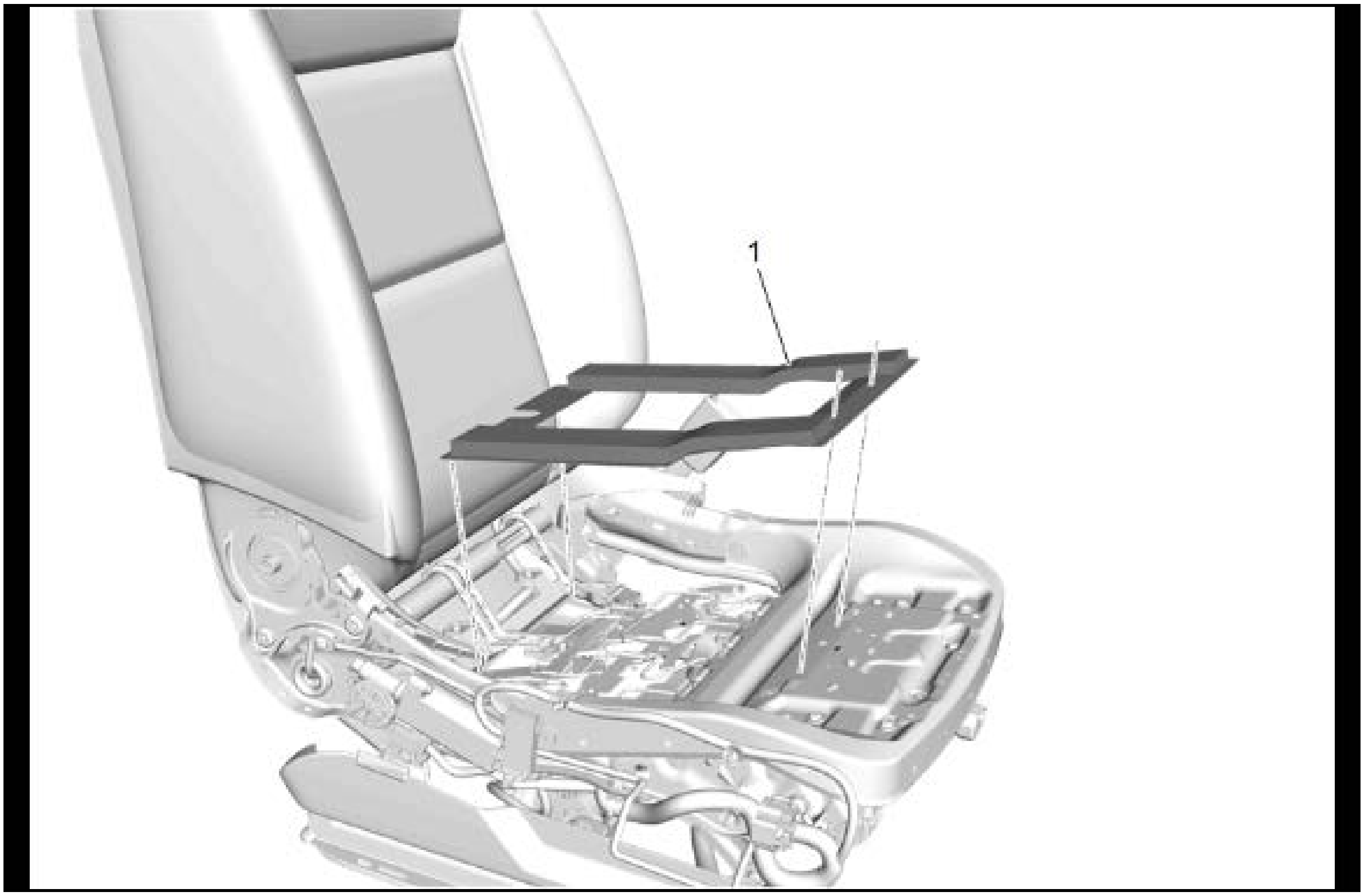
5641453

1. Front Seat Cushion Cover and Pad (1) » Remove



5023316

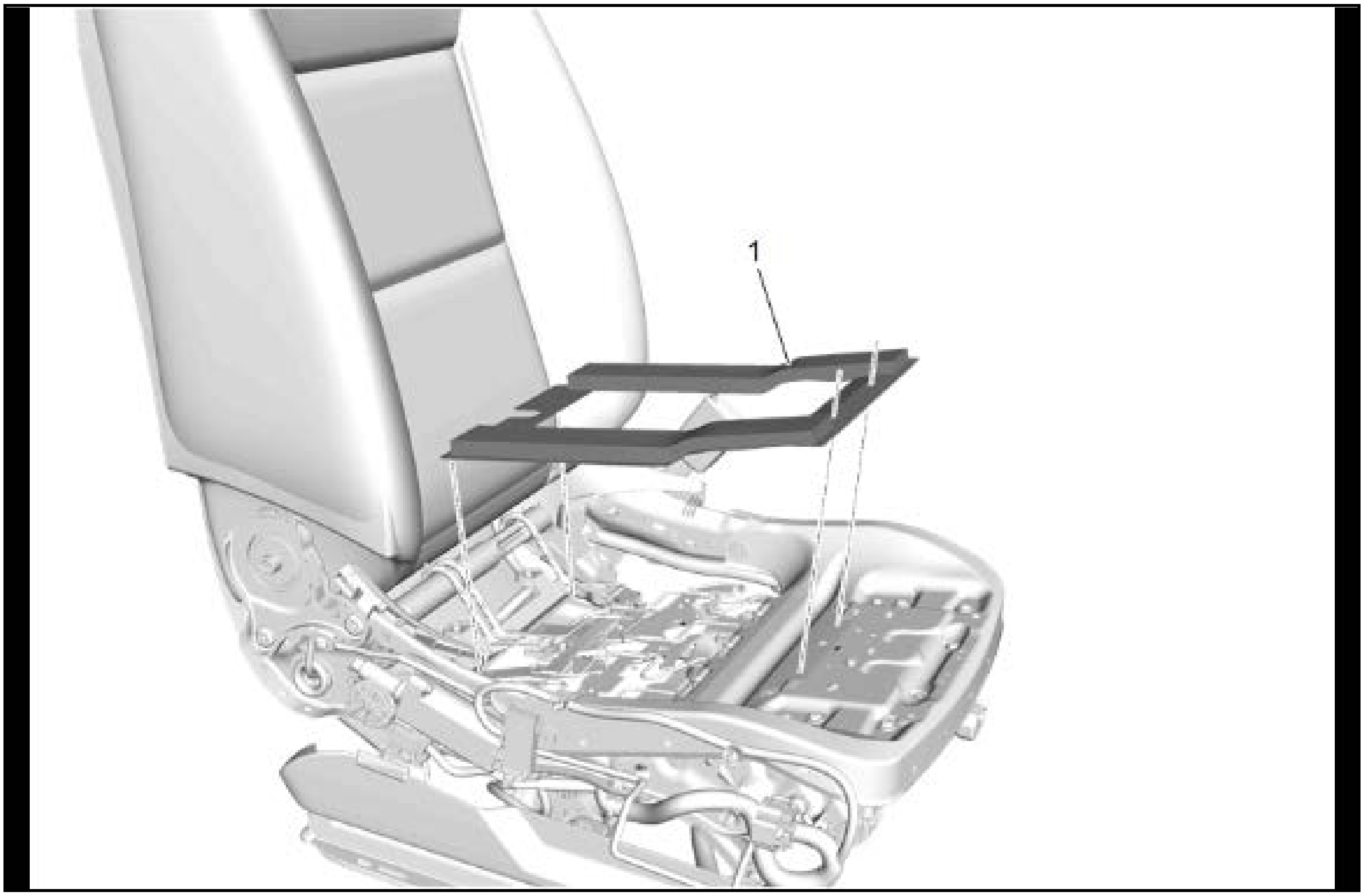
2. Disconnect the electrical connector.
3. Remove the airbag front passenger presence module sensor from the bracket.
4. Airbag Front Passenger Presence Module Retainer (1) » Remove [2x]
5. Airbag Front Passenger Presence Module (2) » Remove



5591109

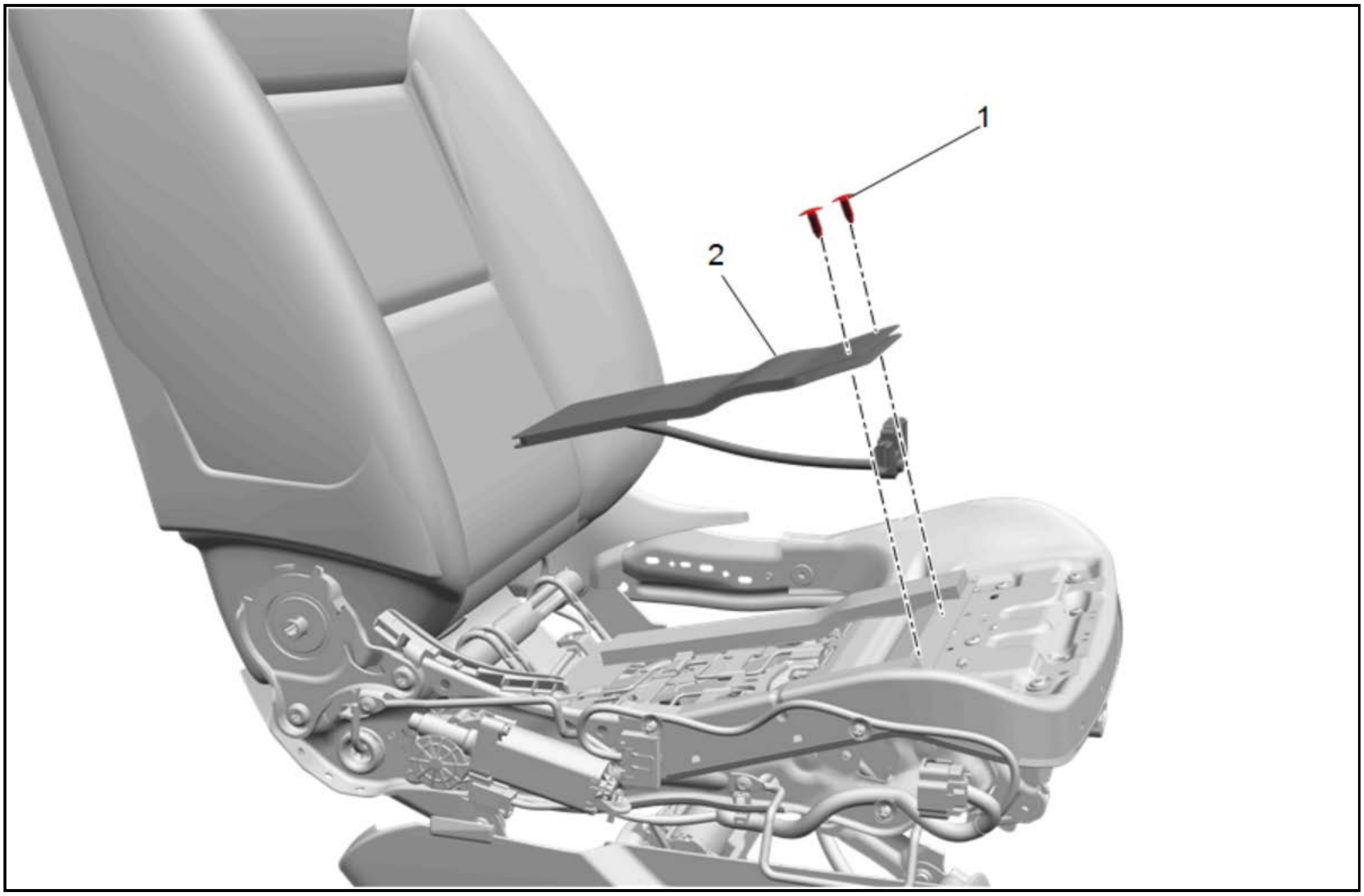
6. { If equipped } Front Seat Cushion Pad Front Support (1) » Remove

Installation Procedure



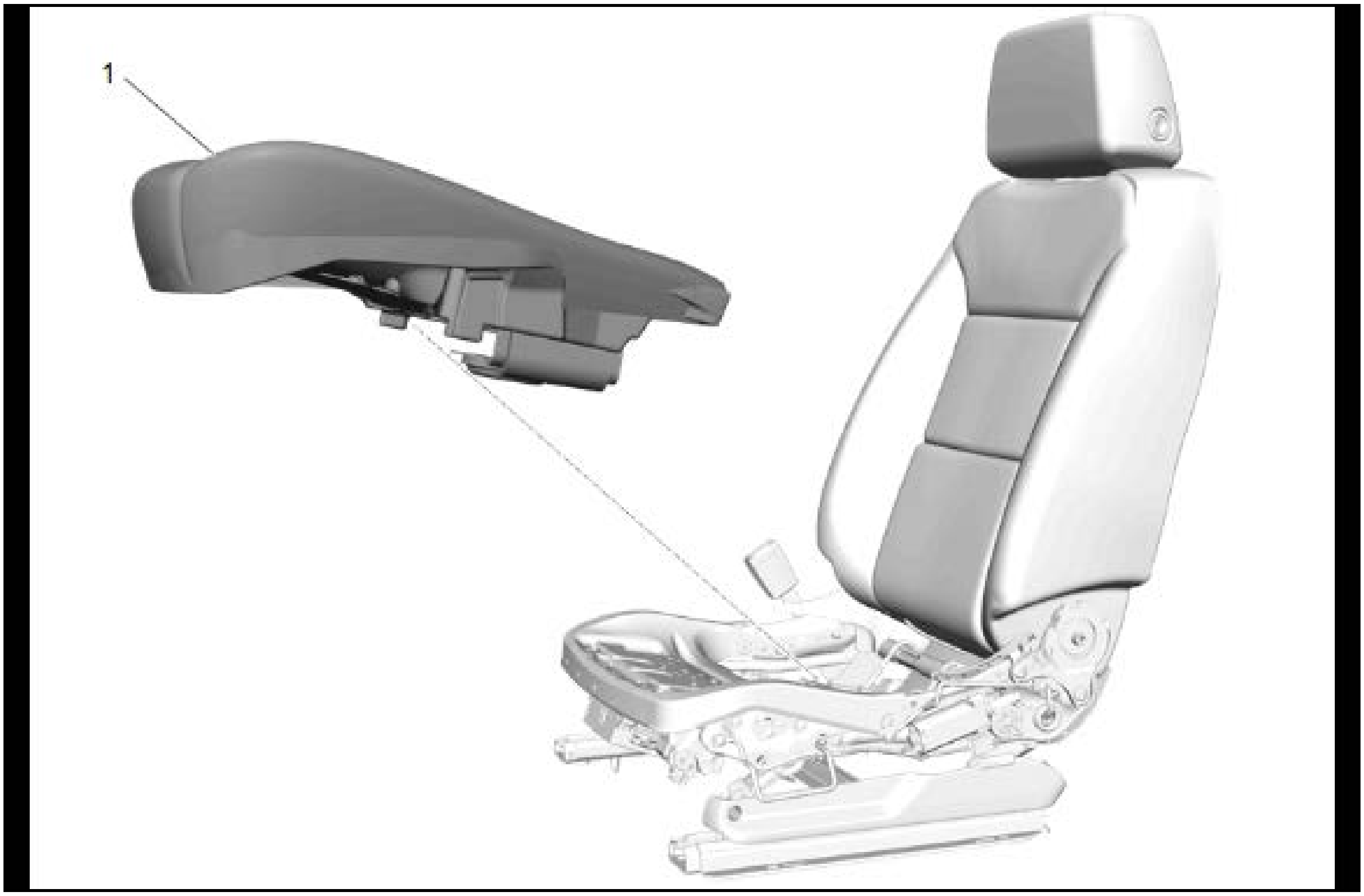
5591109

1. { If equipped } Front Seat Cushion Pad Front Support (1) » Install



5023316

2. Airbag Front Passenger Presence Module (2) » Install
3. Airbag Front Passenger Presence Module Retainer (1) » Install [2x]
4. Install the airbag front passenger presence module sensor onto the bracket.
5. Connect the electrical connector.



5641453

6. Front Seat Cushion Cover and Pad (1) » Install

   Note: The Regulatory Name for this component because of SAE J1930 is Restraints Occupant Classification System Module.

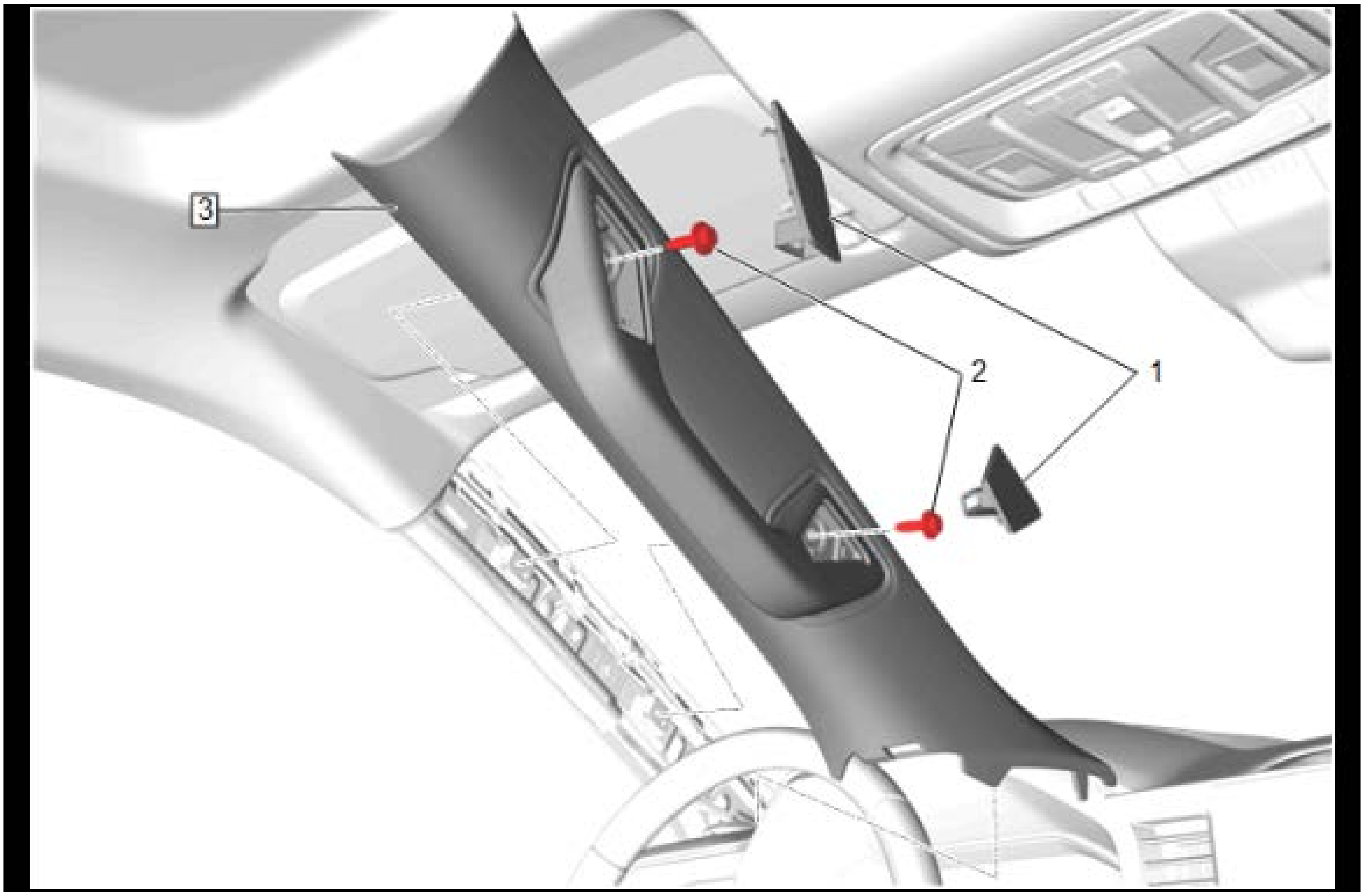
7. Perform the necessary programming and setup procedure: Control Module References

Front and Rear Row Roof Rail Airbag Replacement

Object-ID=5985647 Owner=Fuller, Sean LMD=09-Jun-2022 LMB=Zulka, Kevin

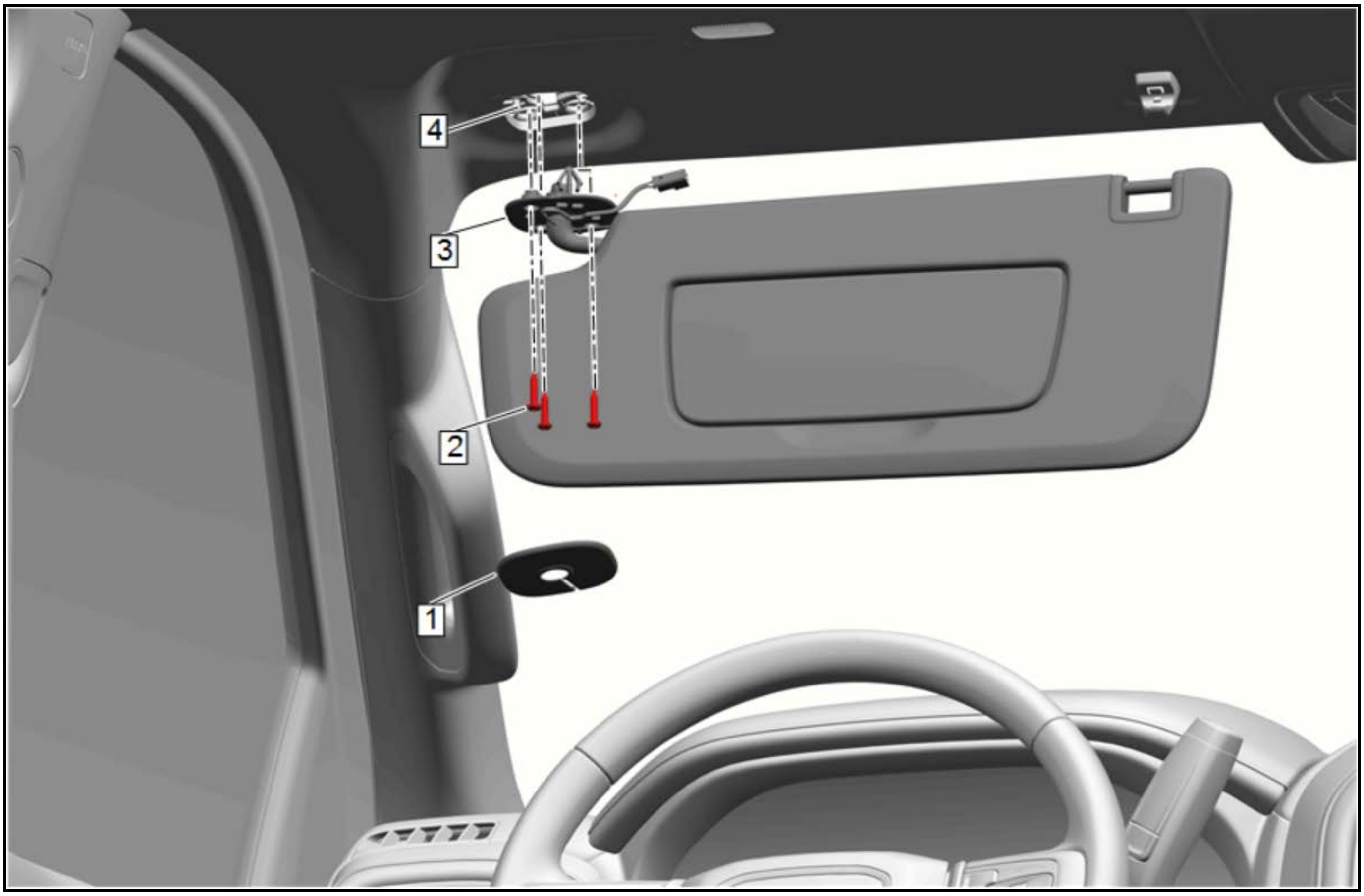
Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*



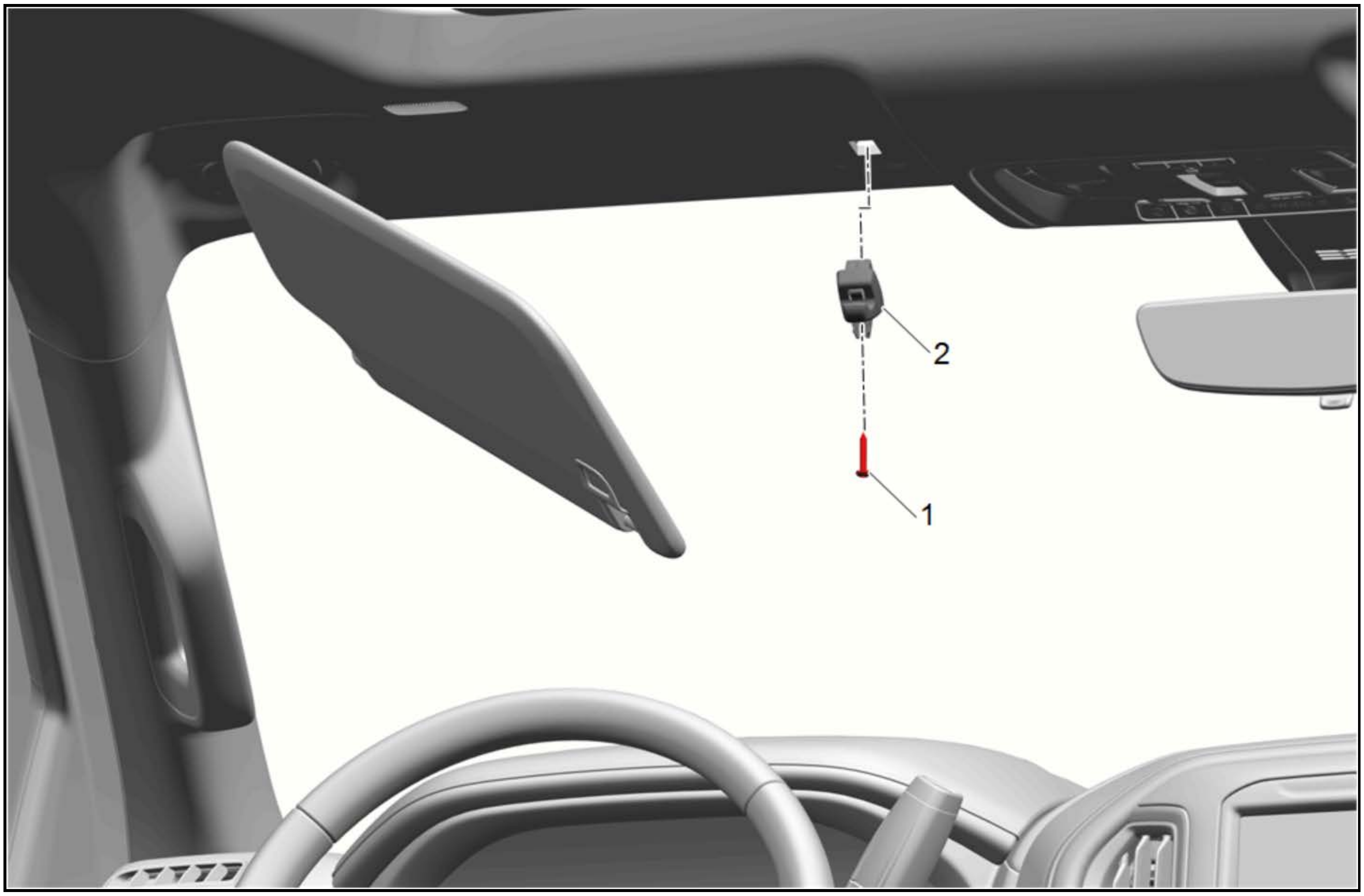
Note: Left side shown, right side similar.

2. Use a small flat - bladed tool to open the upper and lower assist handle covers (1) to access the bolts (2).
3. Windshield Pillar Assist Handle Cover - Left Side and Right Side (1) » Remove [4x]
4. Windshield Pillar Assist Handle Bolt - Left Side and Right Side (2) » Remove [4x]
5. Pull inward at the top to disengage the upper attachment clips.
6. Pull upward to disengage from the instrument panel.
7. Windshield Garnish Molding - Left Side and Right Side (3) » Remove [2x]



Note: Left side shown, right side similar.

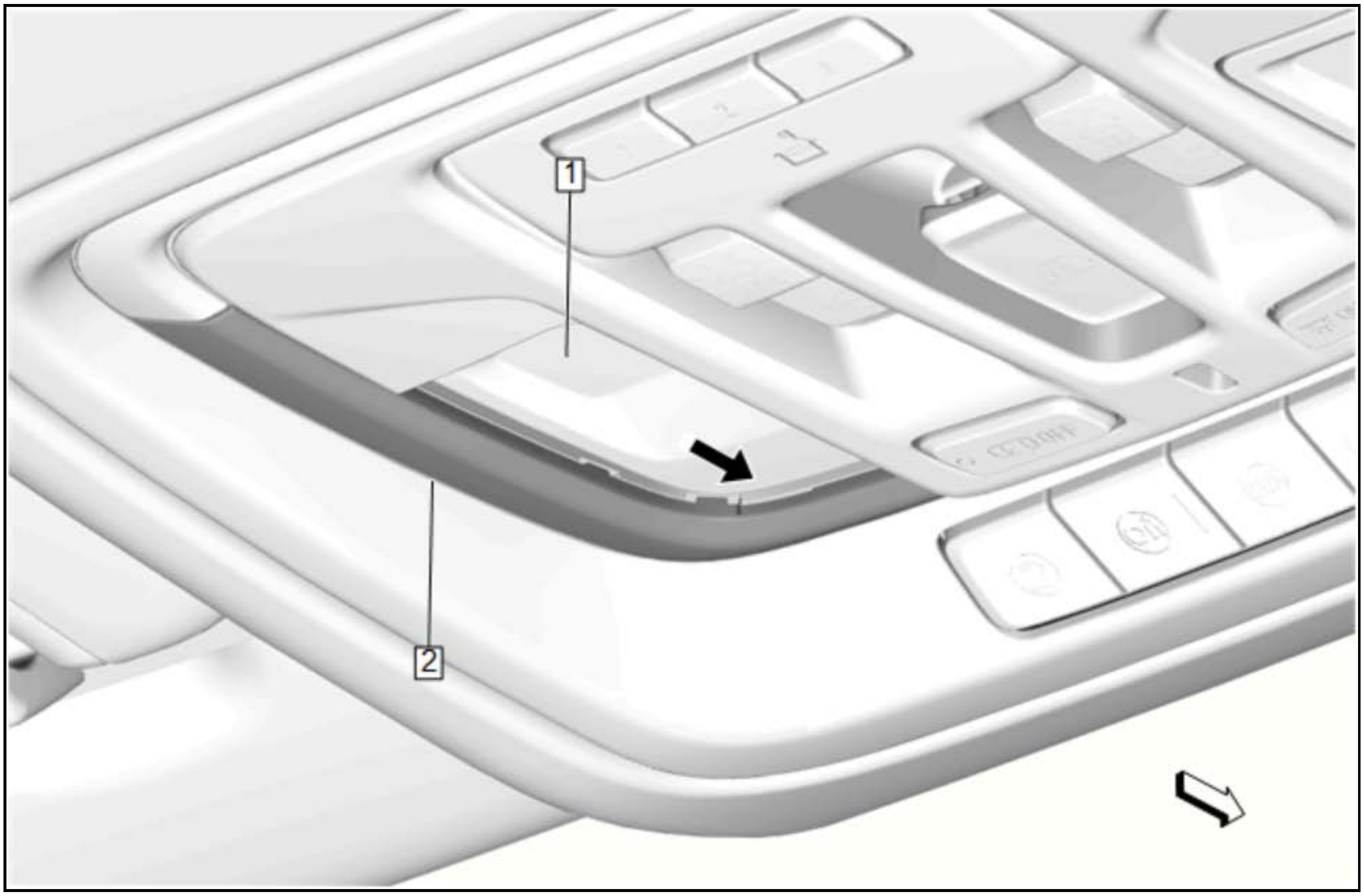
8. Sunshade Retainer Bolt Cover - Left Side and Right Side (1) » Remove [2x]
9. Sunshade Bolt - Left Side and Right Side (2) » Remove [6x]
10. Squeeze the tabs at the base of the 2 sunshades (3) to detach them from the roof panel and allow the headliner with the 2 sunshades (3) attached to be lowered.
11. Disconnect the electrical connector.
12. Release the retainers (4) attaching the 2 sunshades (3) to the headlining trim panel.
13. Sunshade - Left Side and Right Side (3) » Remove [2x]



5000952

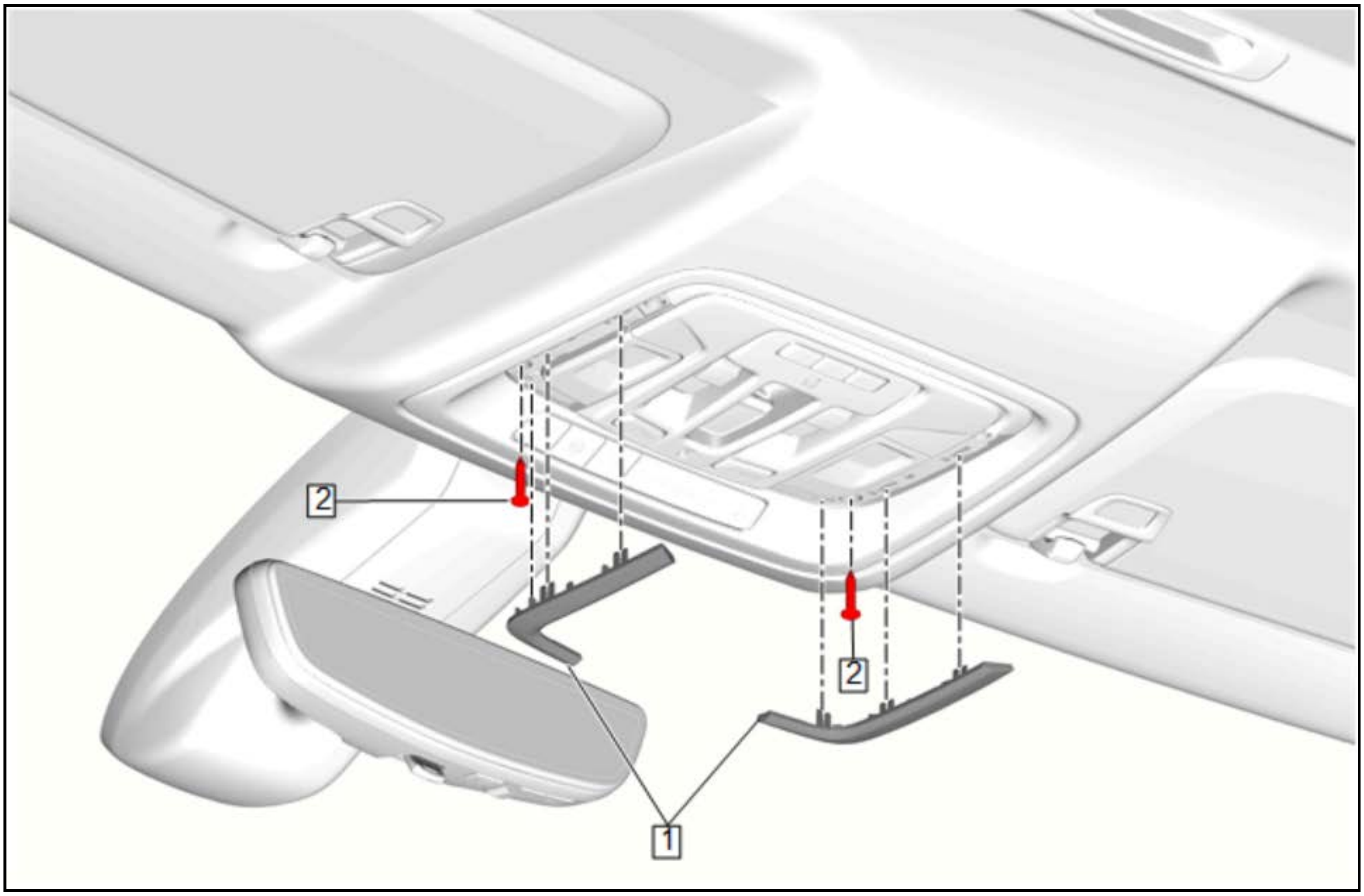
Note: Left side shown, right side similar.

14. Open the 2 sunshade support bolt access cover with an appropriate tool on both sides of the vehicle.
15. Sunshade Support Bolt - Left Side and Right Side (1) » Remove [2x]
16. Using the appropriate tool, release the metal sunshade support retainer on both sides of the vehicle.
17. Sunshade Support - Left Side and Right Side (2) » Remove [2x]



5151168

18. Push in the lamp lens (1) to access the notches on the roof console lamp trim plate (2).
19. Using a plastic trim tool and working your way rearward, release the retainers of the roof console lamp trim plate (2).

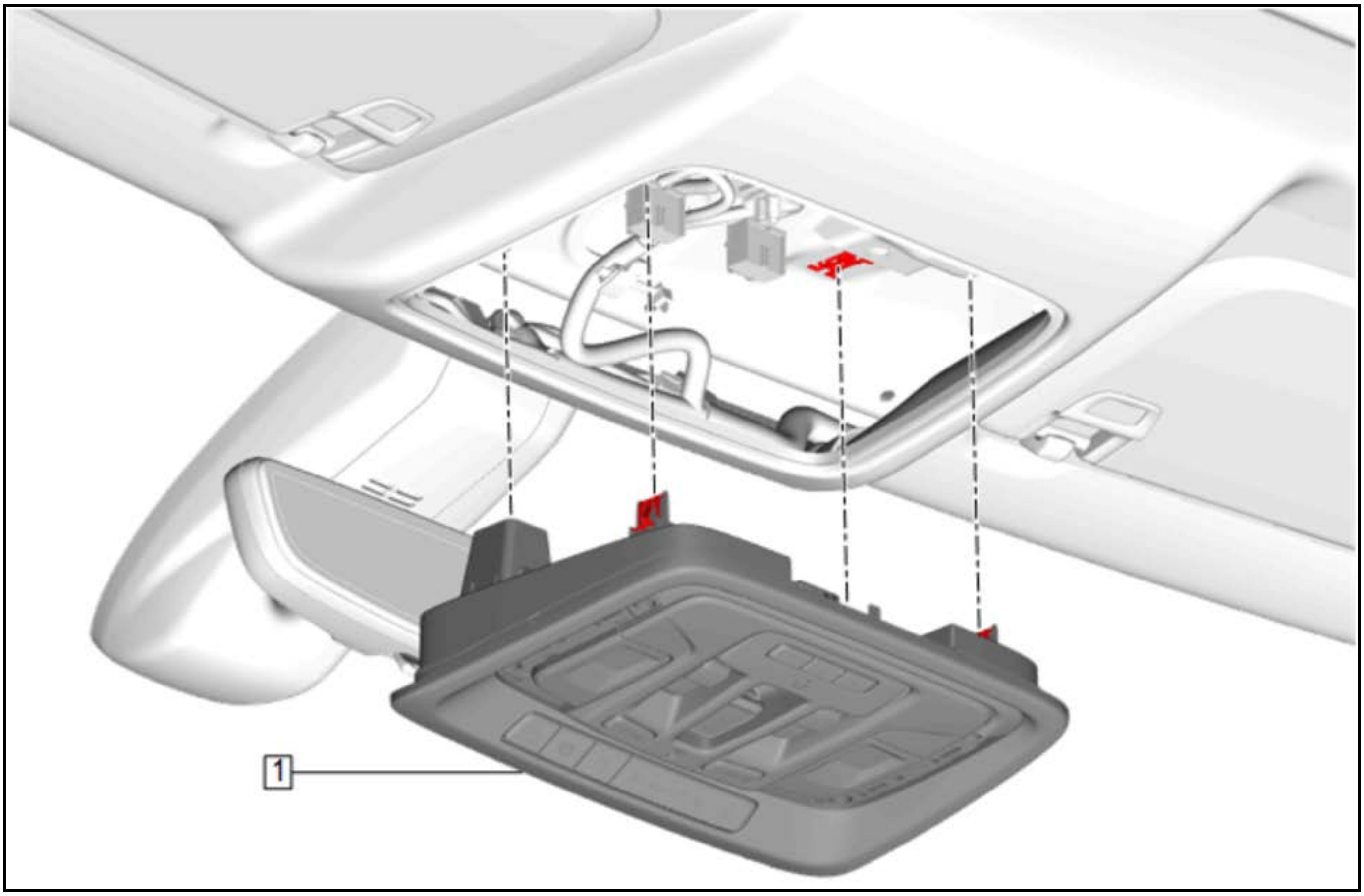


5151170

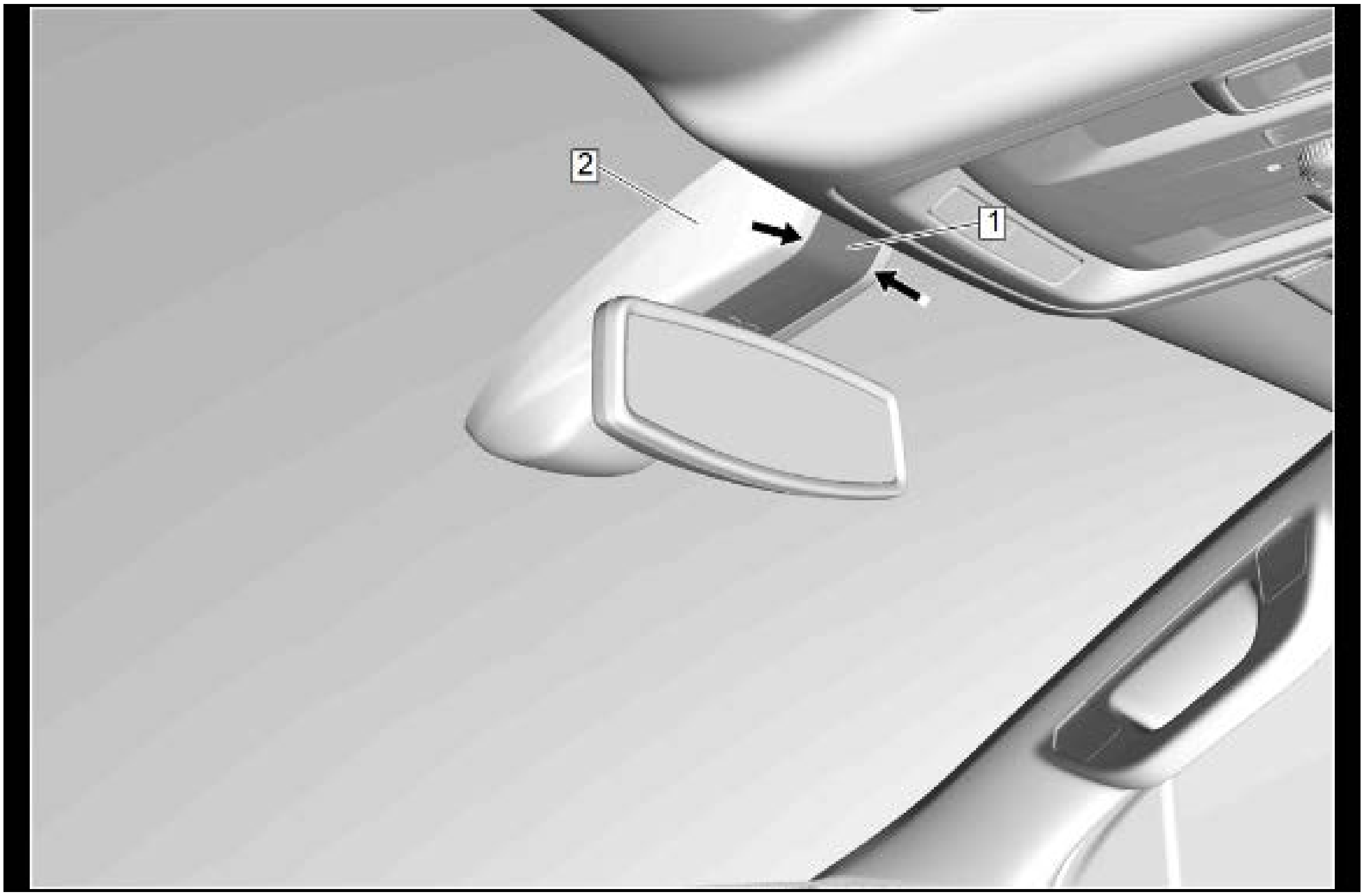
20. Roof Console Lamp Trim Plate (1) » Remove [2x]

    Note: Note the location of the fastener opening. The fasteners are being misaligned and not retaining the forward roof console clips during installation.

21. Roof Console Bolt (2) » Remove [2x]

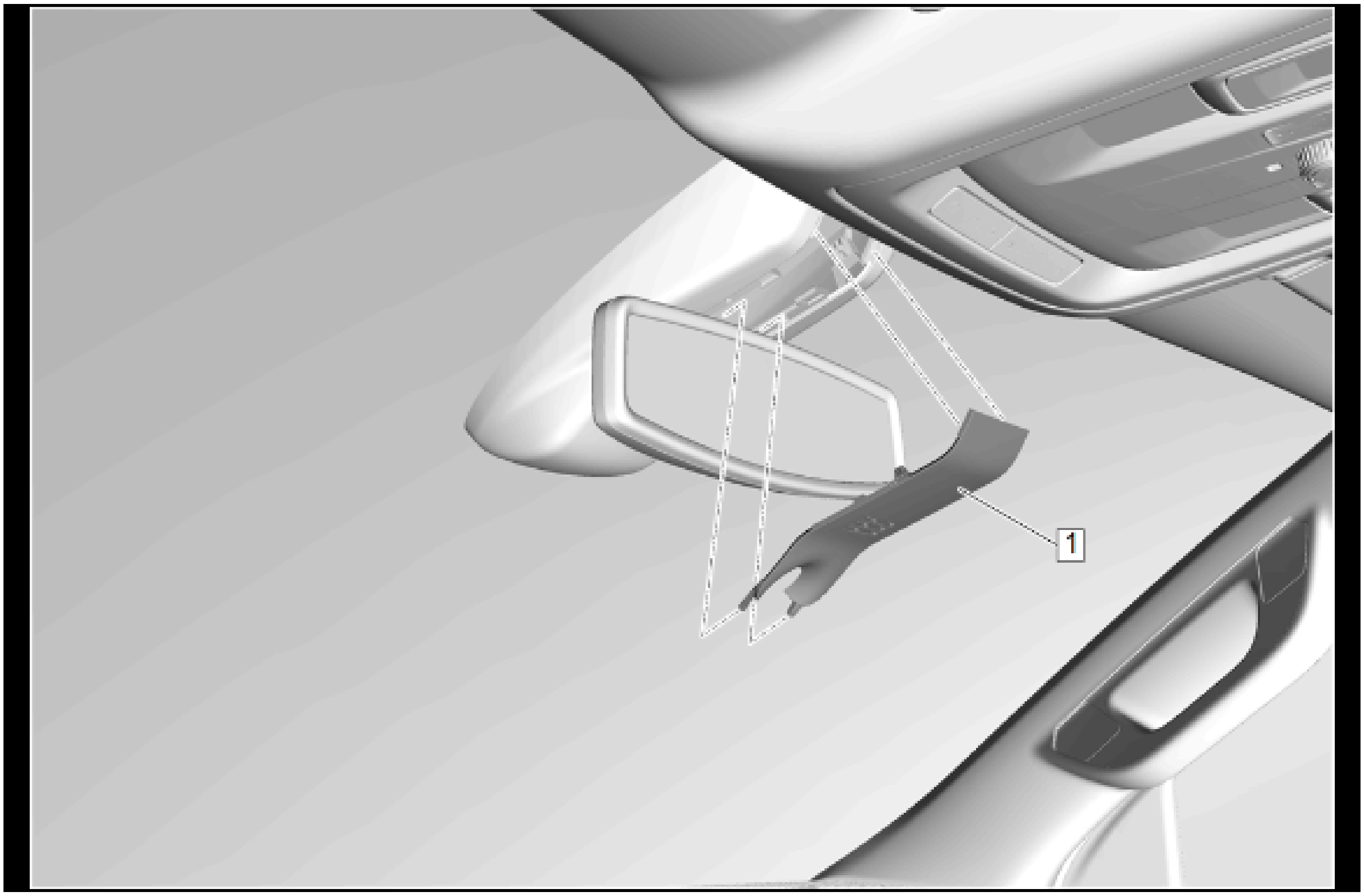


22. Roof Console (1) » Remove
23. Disconnect the electrical connectors.

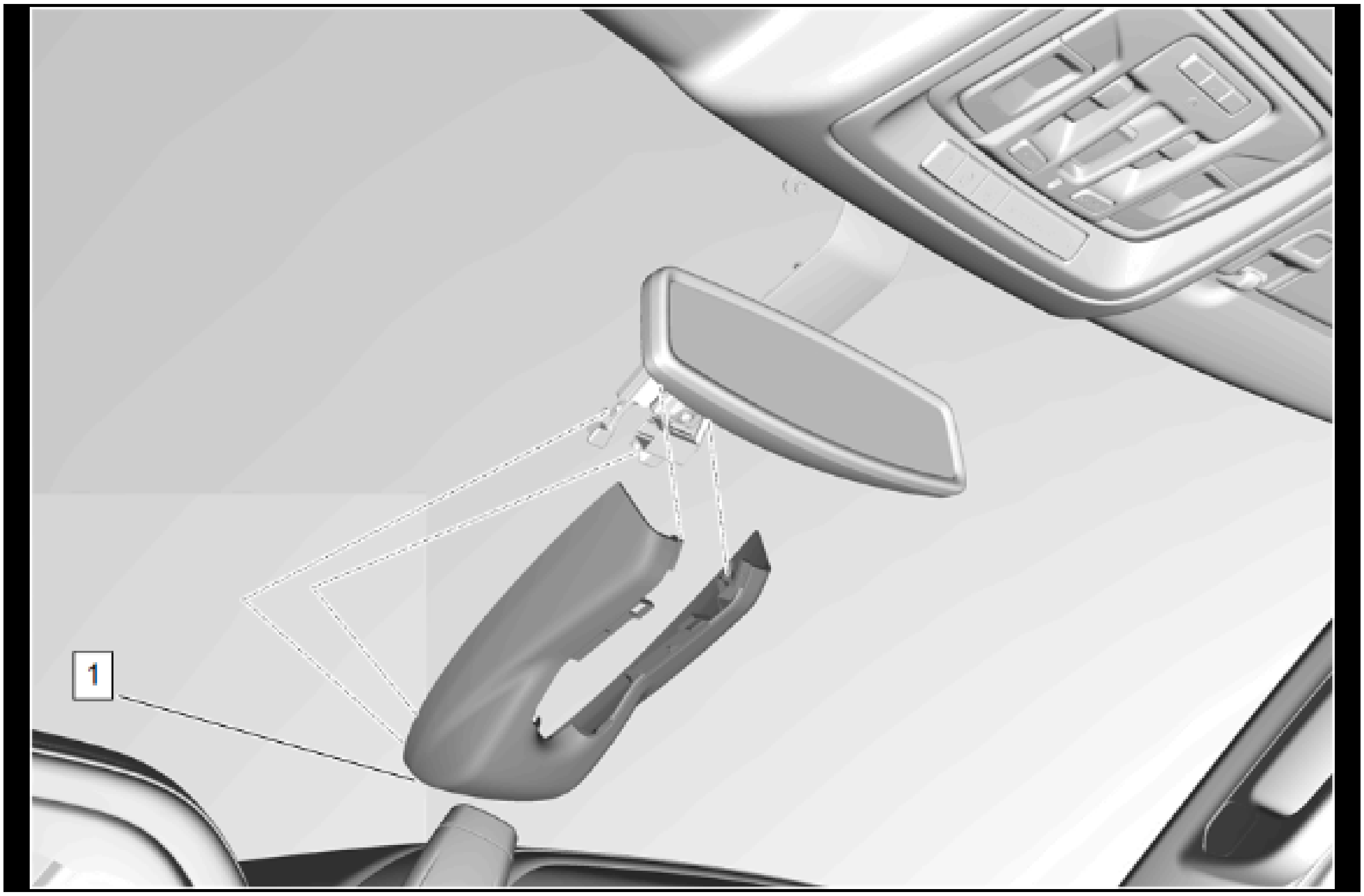


5579672

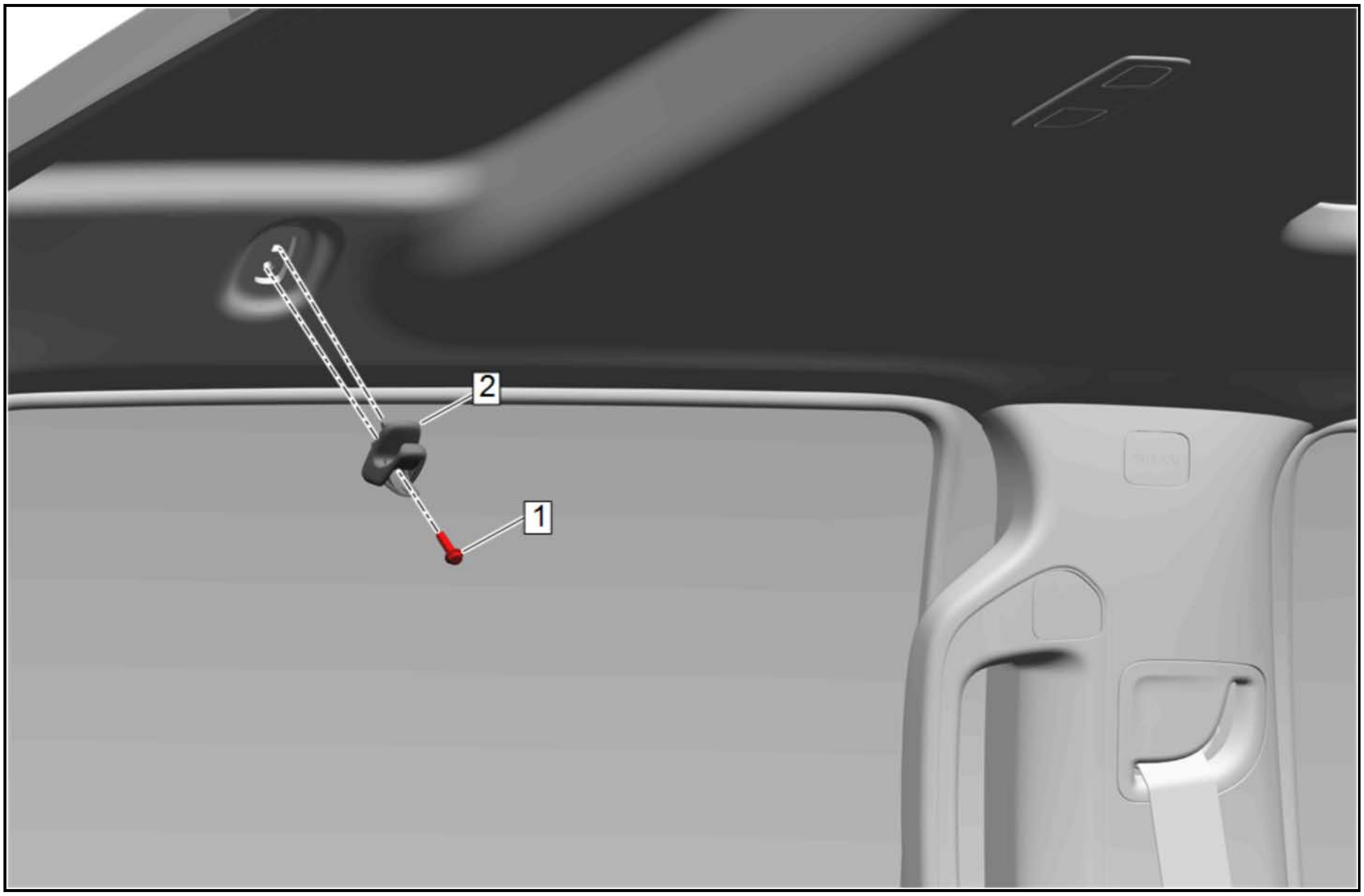
24. Insert a suitable flat-bladed plastic trim tool between the windshield multifunction sensor mount bracket cover insert (1) and windshield multifunction sensor mount bracket cover (2).
25. Separate the windshield multifunction sensor mount bracket cover insert (1) from the windshield multifunction sensor mount bracket cover (2).



26. Windshield Multifunction Sensor Mount Bracket Cover Insert (1) » Remove

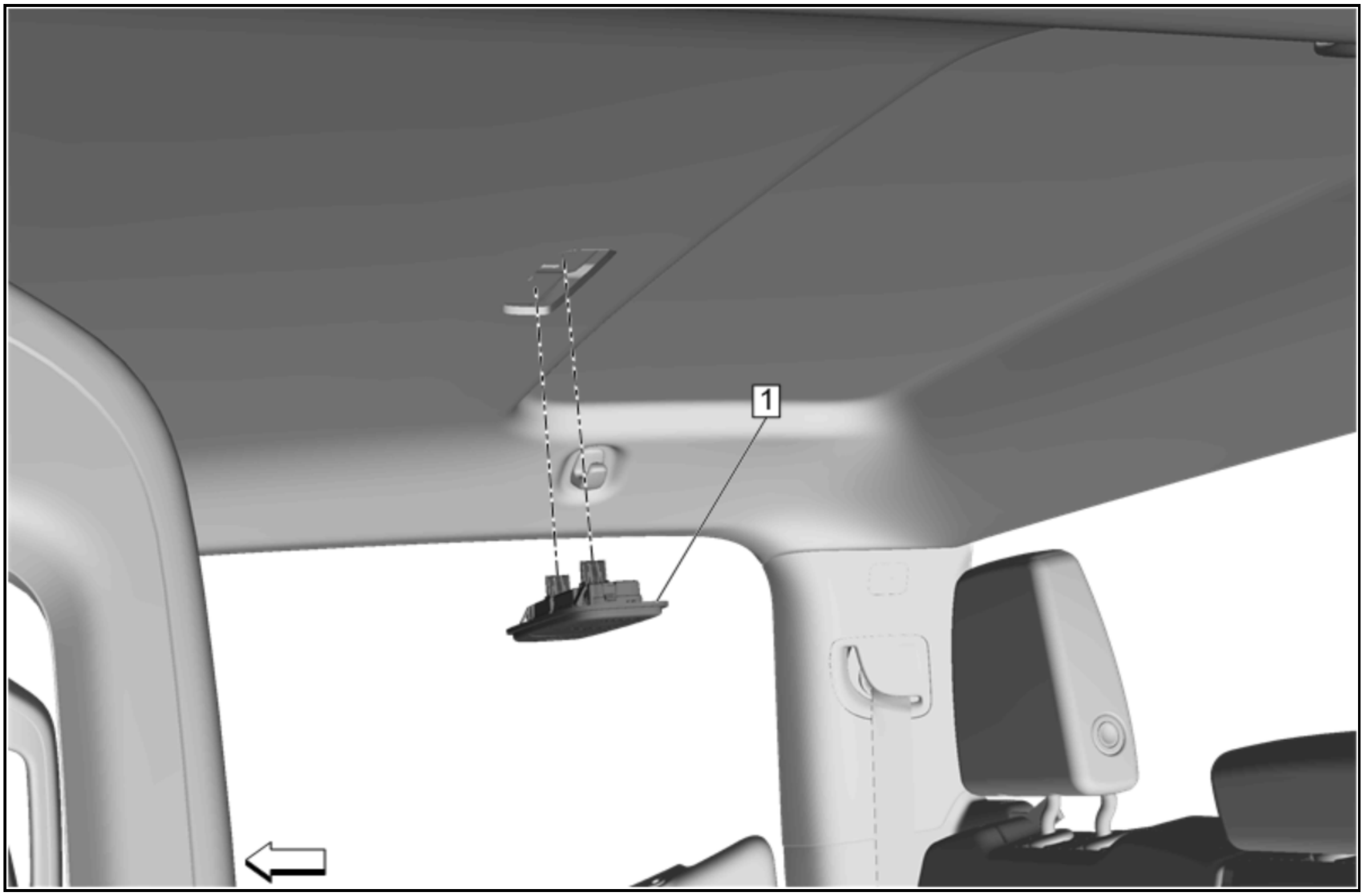


27. Using a suitable plastic trim tool, carefully pry downward on the windshield multifunction sensor mount bracket cover (1) to release it from the windshield.
28. Pull downward to remove the windshield multifunction sensor mount bracket cover (1) from the windshield.



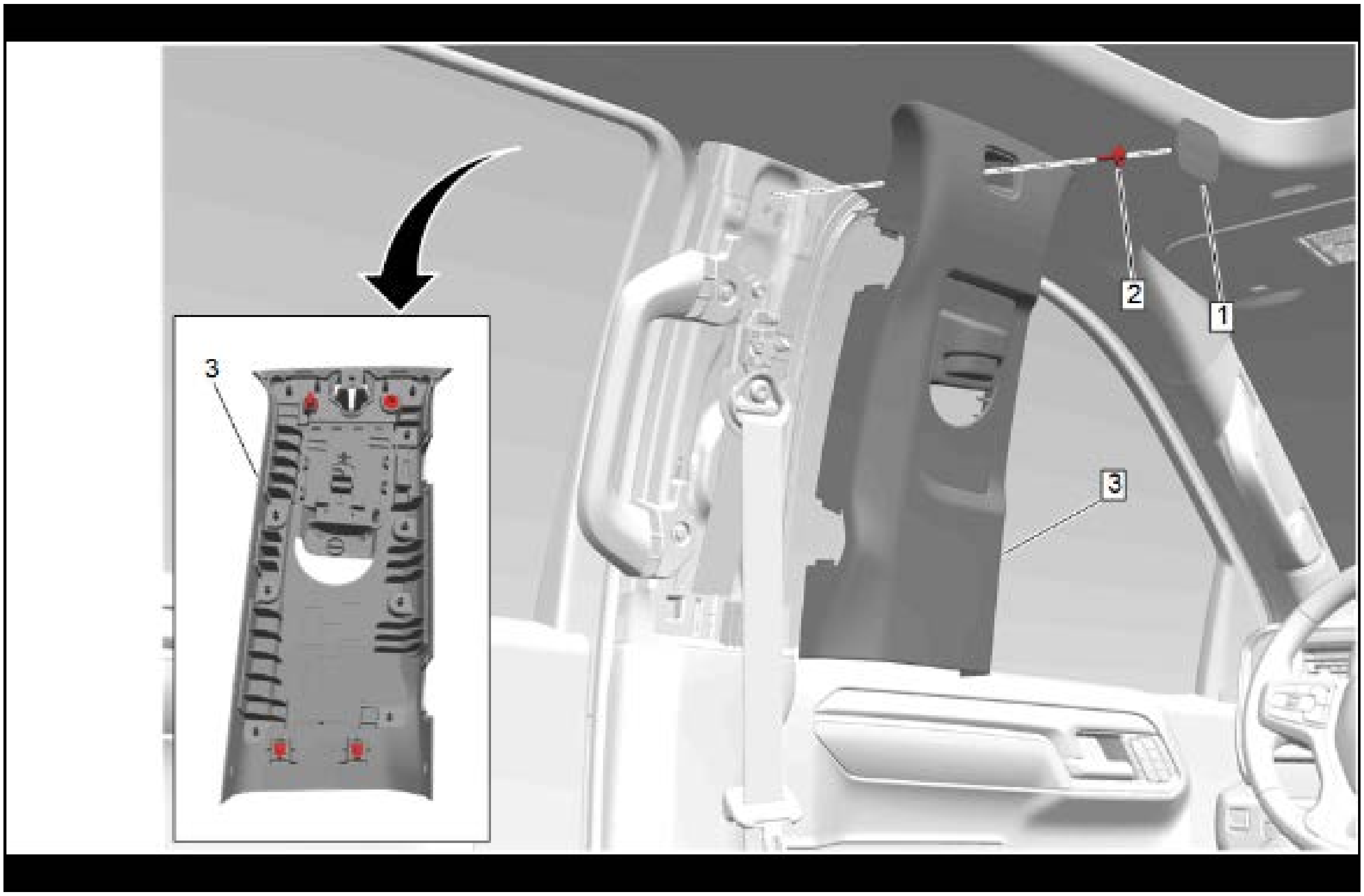
Note: Left side shown, right side similar.

29. Using an appropriate trim tool, open the integral cover on the coat hook (2) to access the coat hook bolt (1).
30. Coat Hook Bolt - Left Side and Right Side (1) » Remove [2x]
31. Coat Hook - Left Side and Right Side (2) » Remove [2x]



5003366

32. Pull the rear seat position center reading and courtesy lamp (1) downward to released from the headlining trim panel.
33. Rear Seat Position Center Reading and Courtesy Lamp (1) » Remove
34. Disconnect the electrical connector.

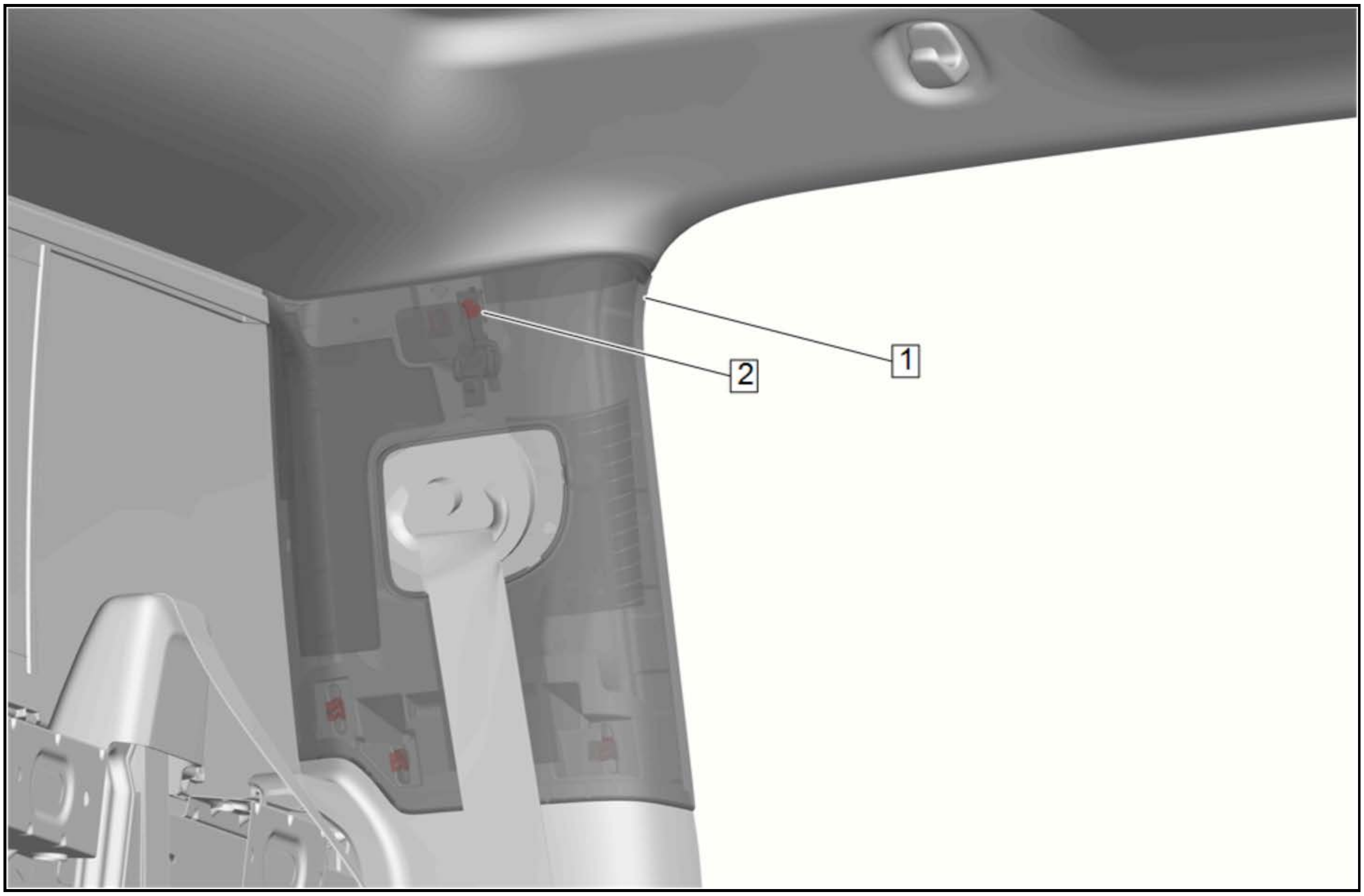


5904659

Note: Left side shown, right side similar.

35. Use a small flat - bladed tool to open the bolt caps (1) and gain access to the bolts.
36. Center Pillar Upper Trim Panel Bolt Cap - Left Side and Right Side (1) » Remove [2x]
37. Center Pillar Upper Garnish Molding Bolt - Left Side and Right Side (2) » Remove [2x]
38. Pull the center pillar upper trim panel (3) toward the inside of the vehicle to disengage the clips and retainers on both sides of the vehicle.

    Note: The Center Pillar Upper Trim Panel does not need to be fully removed from the vehicle.
39. Center Pillar Upper Trim Panel - Left Side and Right Side (3) » Reposition [2x]

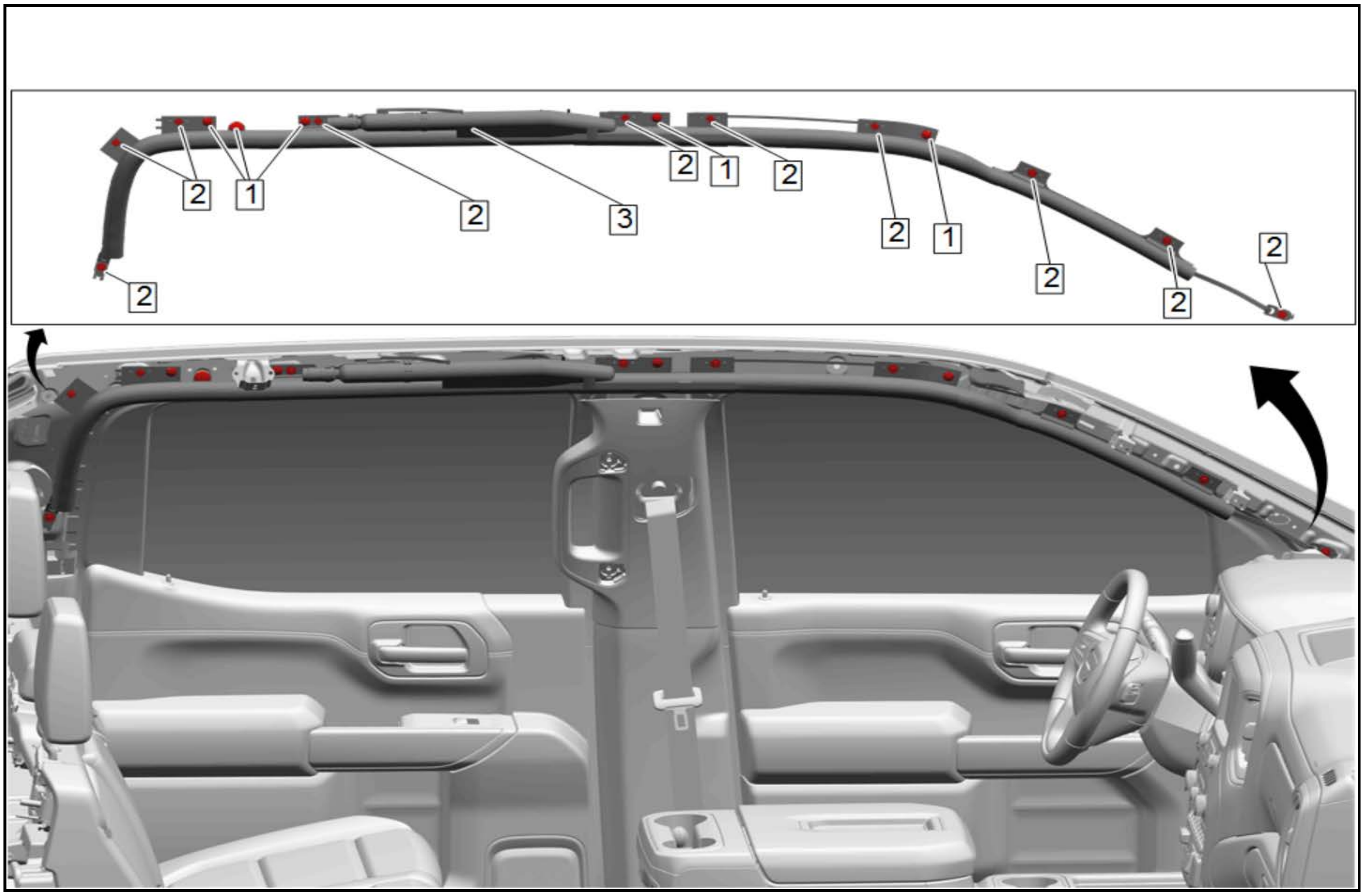


Note: Left side shown, right side similar.

40. Pull the body side rear window garnish molding (1) rearwards to release the tether from the body side inner frame on both sides of the vehicle.

    Note: Tether and quarter window trim finish panel bolt (2) are integral to the body side rear window garnish molding (1).

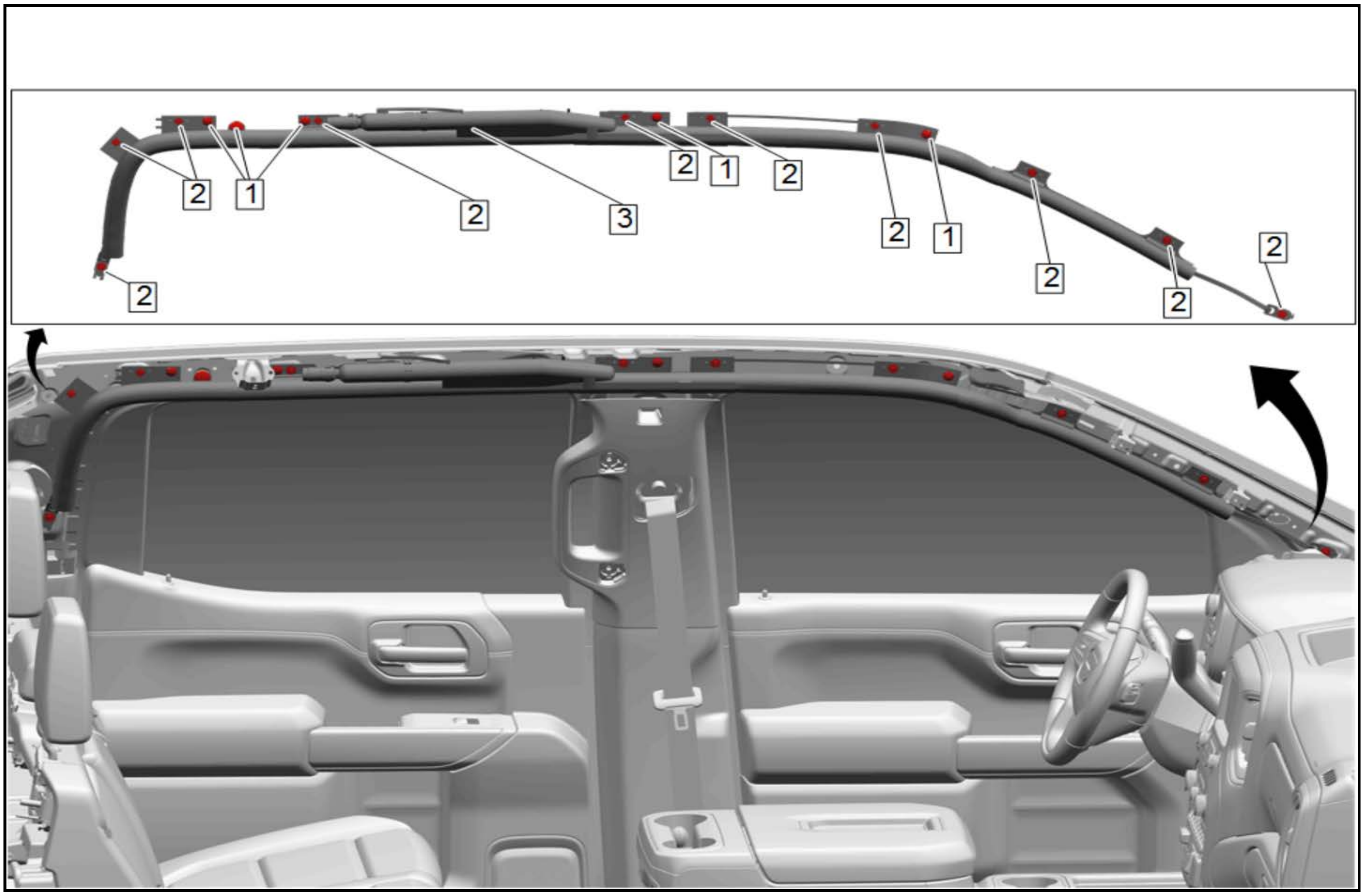
41. Access the quarter window trim finish panel bolt (2) which is located on the backside of the rear window garnish molding (1) and secures the tether to the body side inner frame.
42. Quarter Window Trim Finish Panel Bolt - Left Side and Right Side (2) » Remove [2x]
43. Body Side Rear Window Garnish Molding - Left Side and Right Side (1) » Reposition [2x]
44. Lower the headlining trim panel.



Note: Left side shown, right side similar.

45. Roof Rail Airbag Bolt (2) » Remove [10x]
46. Roof Rail Airbag Retainer (1) » Remove [5x]
47. Disconnect the electrical connector.
48. Front and Rear Row Roof Rail Airbag (3) » Remove
49. Properly dispose of the airbag module. *Inflatable Restraint Module Handling and Scrapping on page 8-659*

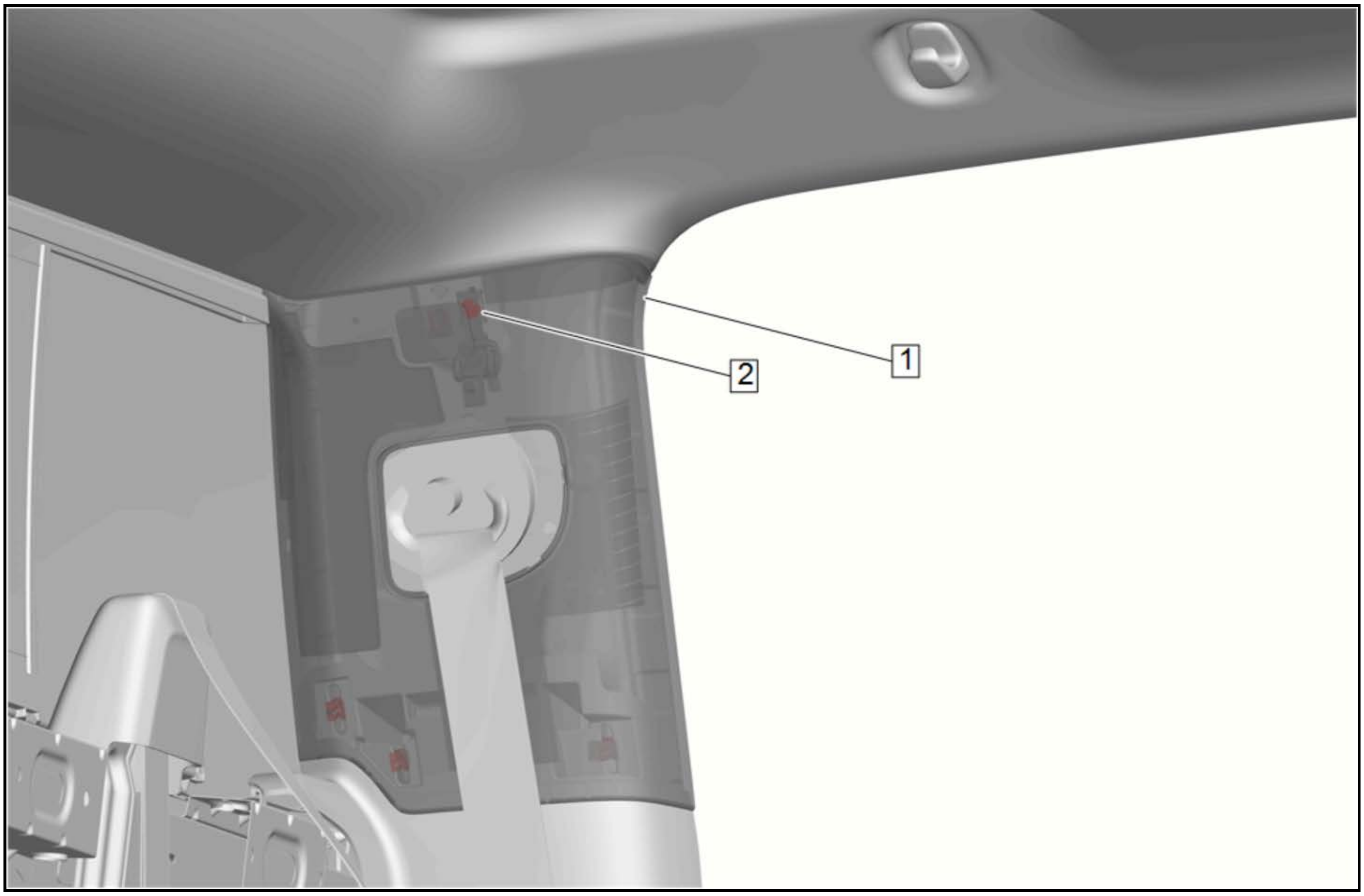
Installation Procedure



5039802

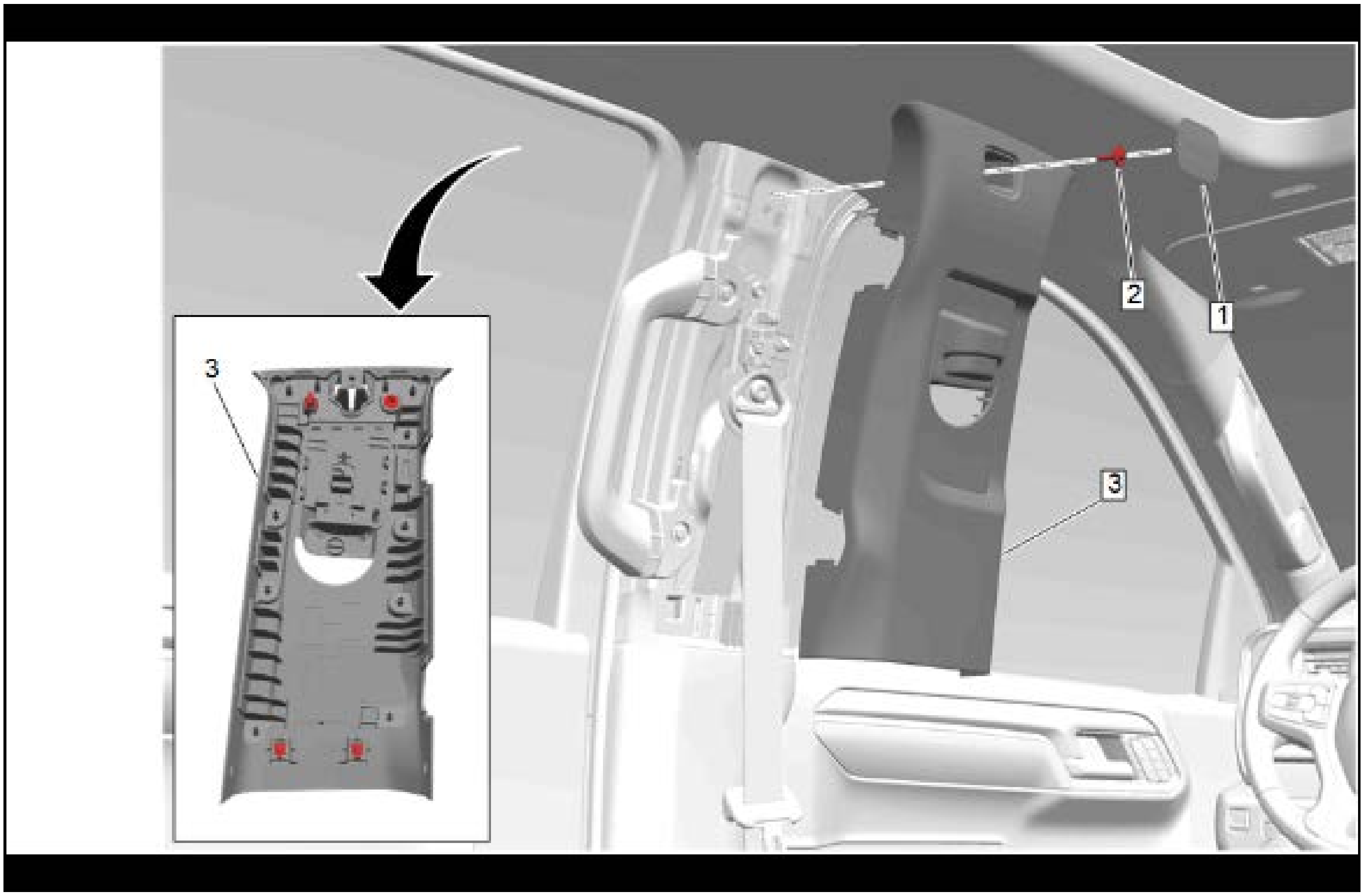
Note: Left side shown, right side similar.

1. Front and Rear Row Roof Rail Airbag (3) » Install
2. Connect the electrical connector.
3. Roof Rail Airbag Retainer (1) » Install [5x]
4. Roof Rail Airbag Bolt (2) » Install and tighten [10x] — *Fastener Specifications on page 8-427*
5. Install the headlining trim panel.



Note: Left side shown, right side similar.

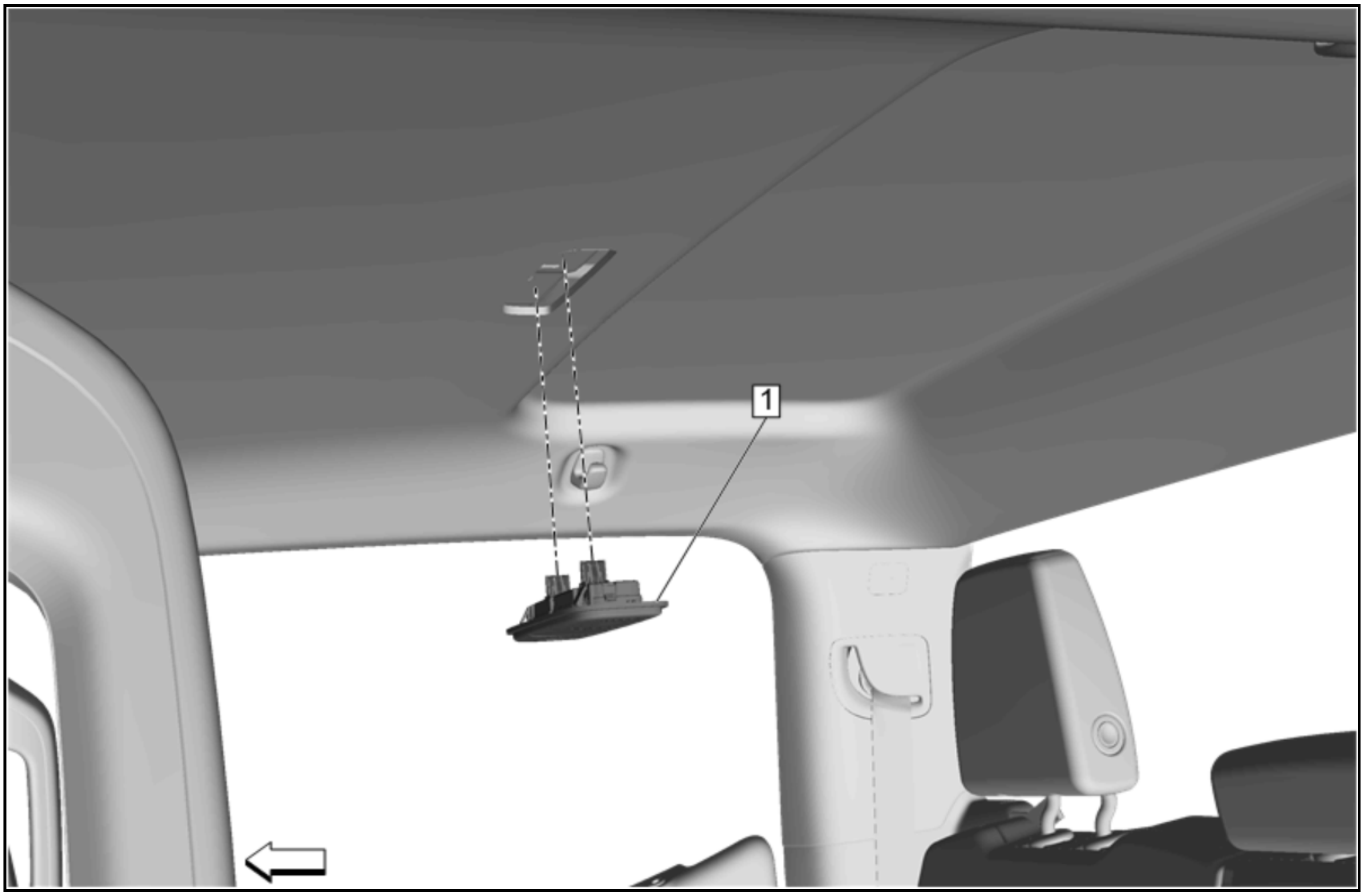
6. Route the left side and right side seat belt webbing through the body lock pillar garnish molding (1).
7. Body Side Rear Window Garnish Molding - Left Side and Right Side (1) » Install [2x]
8. Quarter Window Trim Finish Panel Bolt - Left Side and Right Side (2) » Install and tighten [2x]



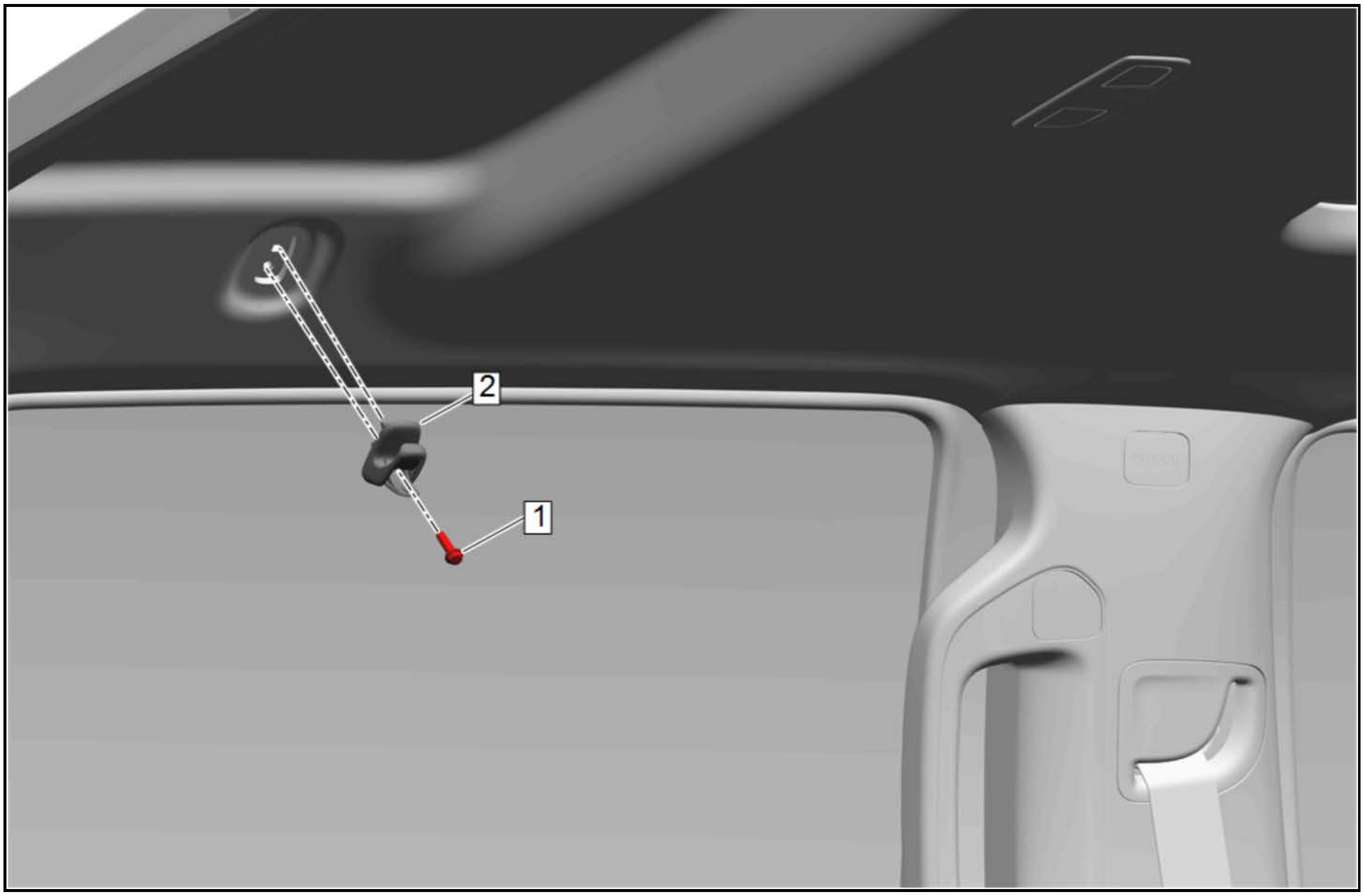
5904659

Note: Left side shown, right side similar.

9. Center Pillar Upper Trim Panel - Left Side and Right Side (3) » Install [2x]
10. Center Pillar Upper Garnish Molding Bolt - Left Side and Right Side (2) » Install and tighten [2x]
11. Center Pillar Upper Trim Panel Bolt Cap - Left Side and Right Side (1) » Install [2x]



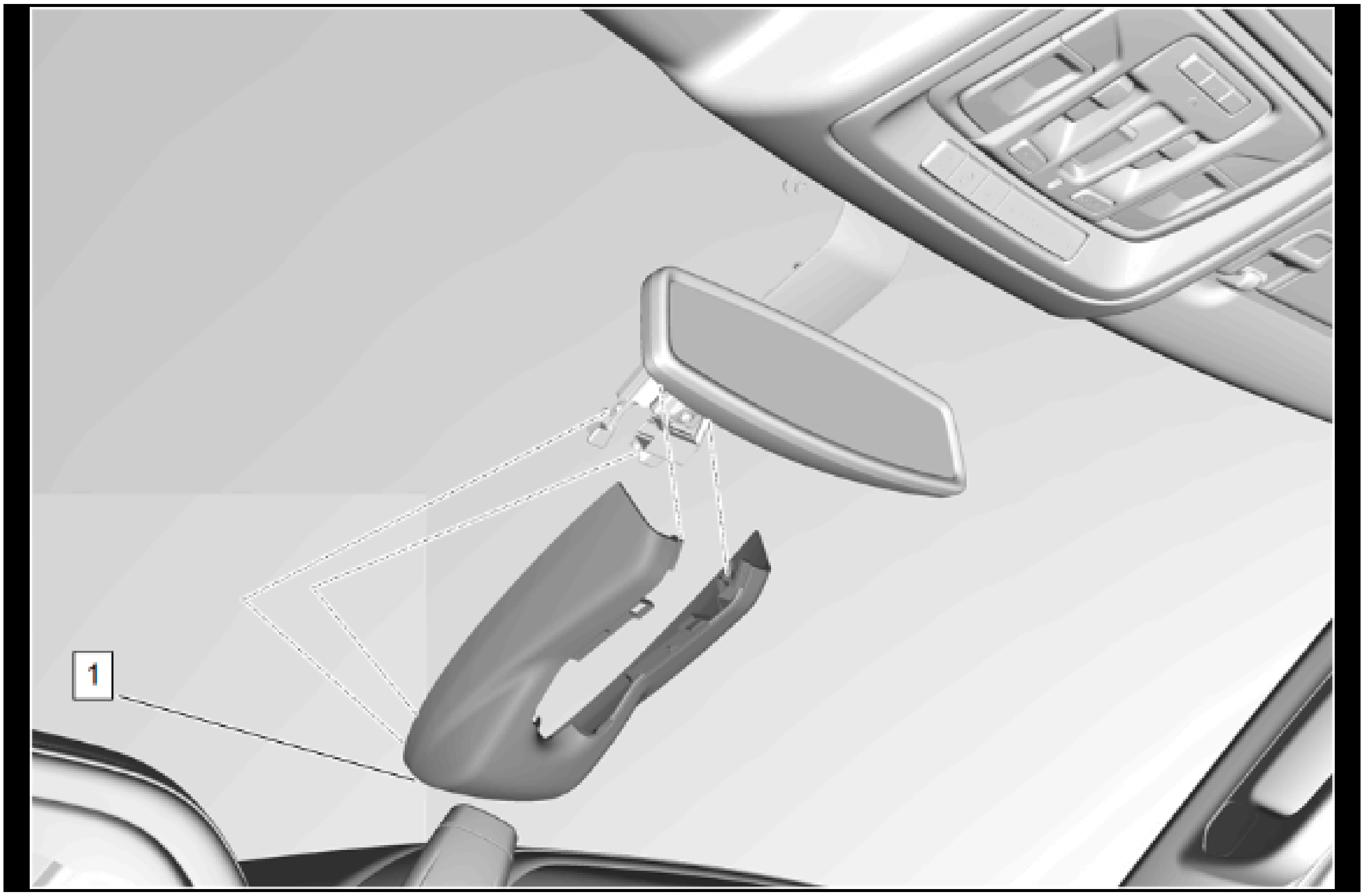
12. Connect the electrical connector.
13. Rear Seat Position Center Reading and Courtesy Lamp (1) » Install
14. Push the rear seat position center reading and courtesy lamp (1) straight upward to secure in the headlining trim panel.



5001041

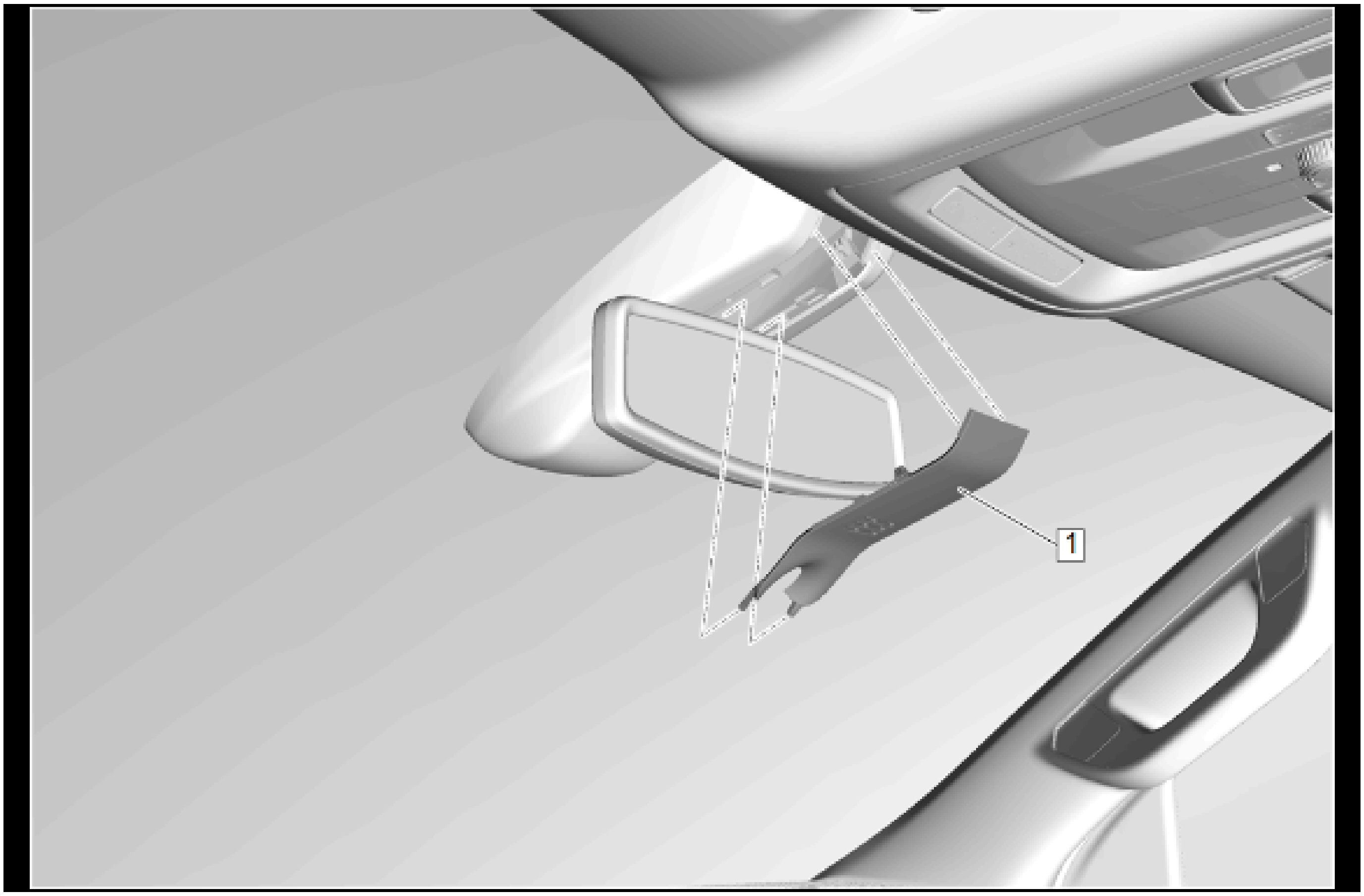
Note: Left side shown, right side similar.

15. Coat Hook - Left Side and Right Side (2) »
    Install [2x]
16. Coat Hook Bolt - Left Side and Right Side (1) »
    Install and tighten [2x]

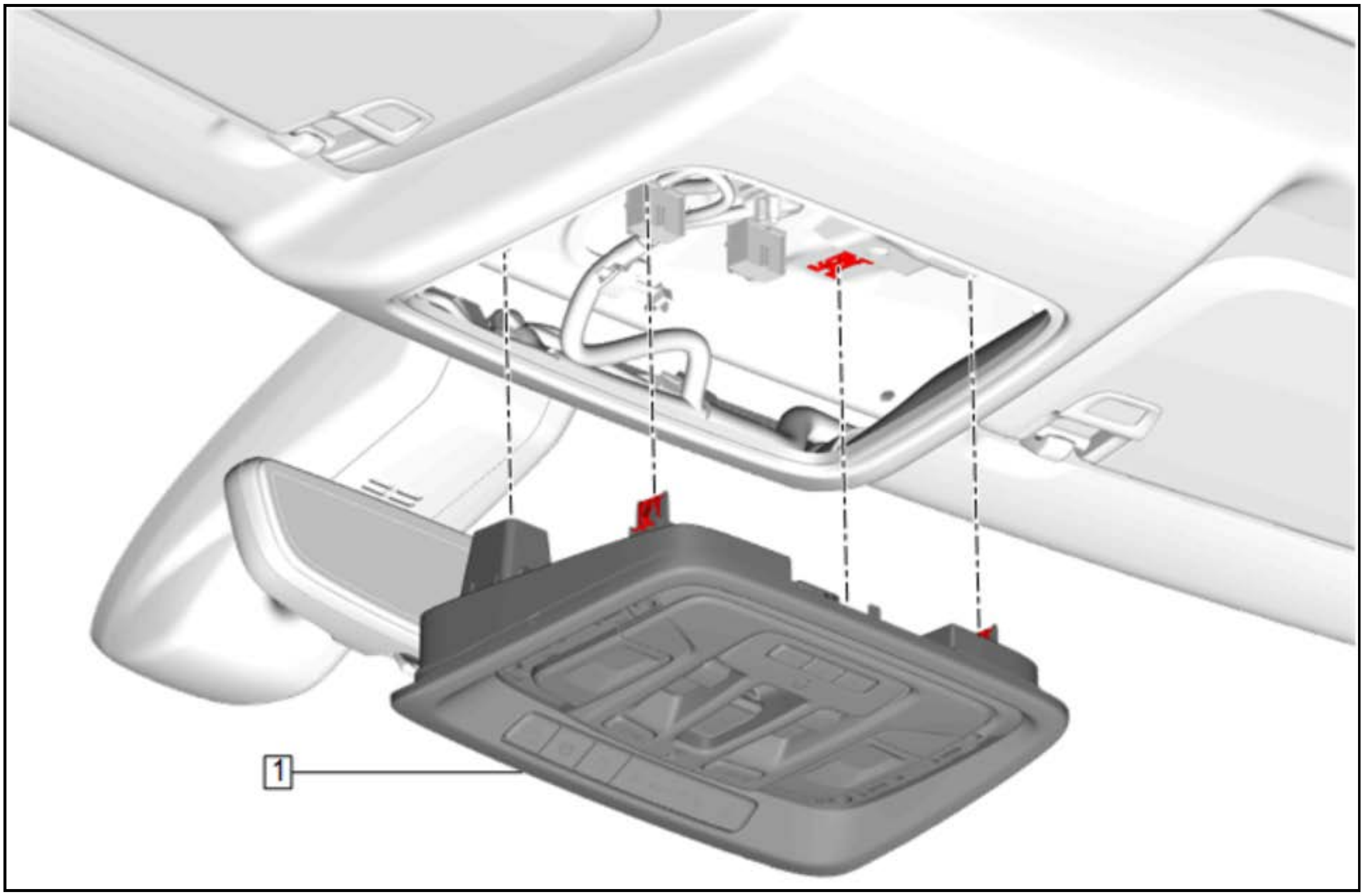


5641084

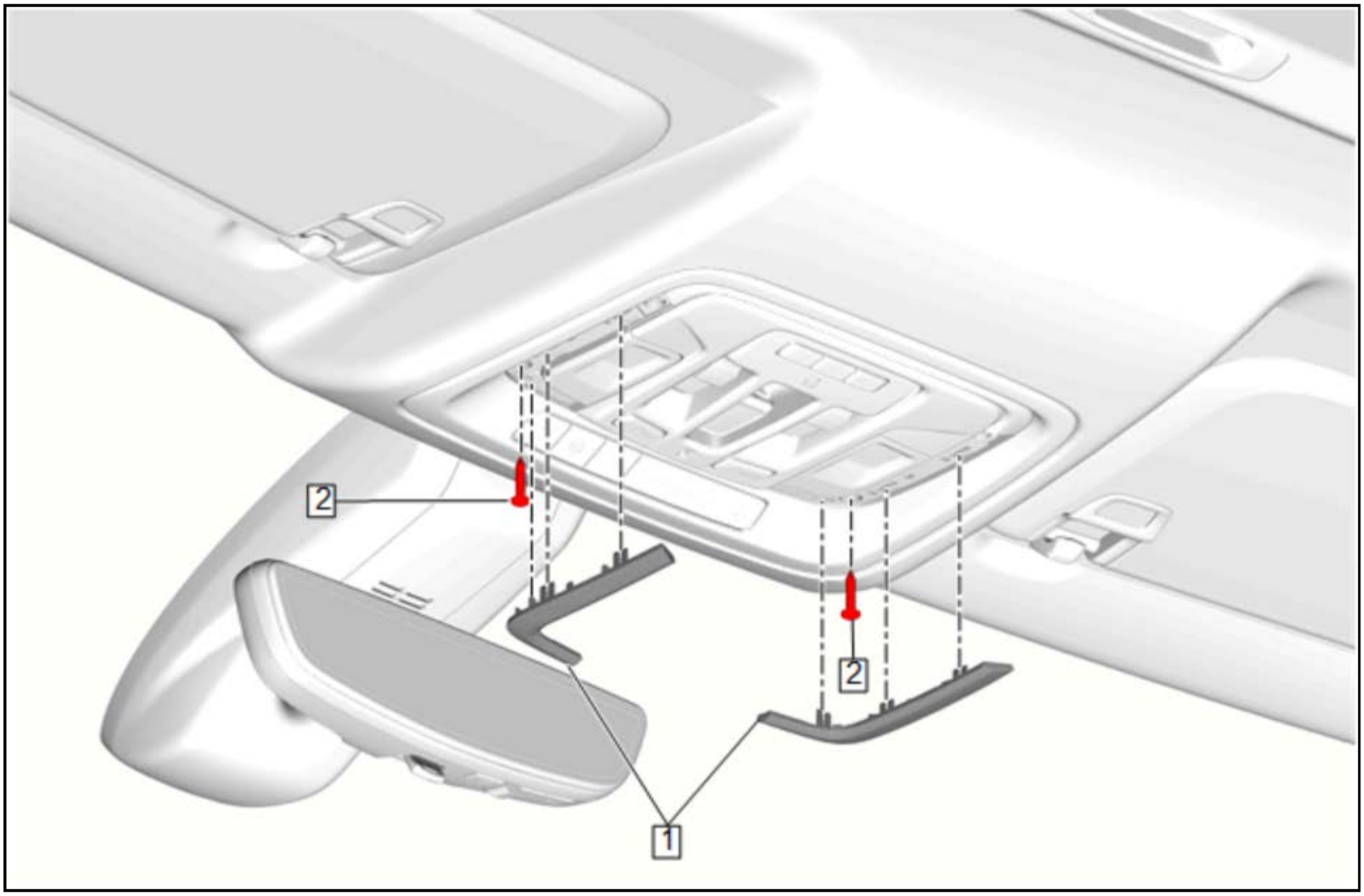
17. Install the windshield multifunction sensor mount bracket cover (1) ensuring the retaining tabs are fully seated.



18. Windshield Multifunction Sensor Mount Bracket Cover Insert (1) » Install
19. Apply pressure upward on the windshield multifunction sensor mount bracket cover insert (1) to engage the retaining tabs.

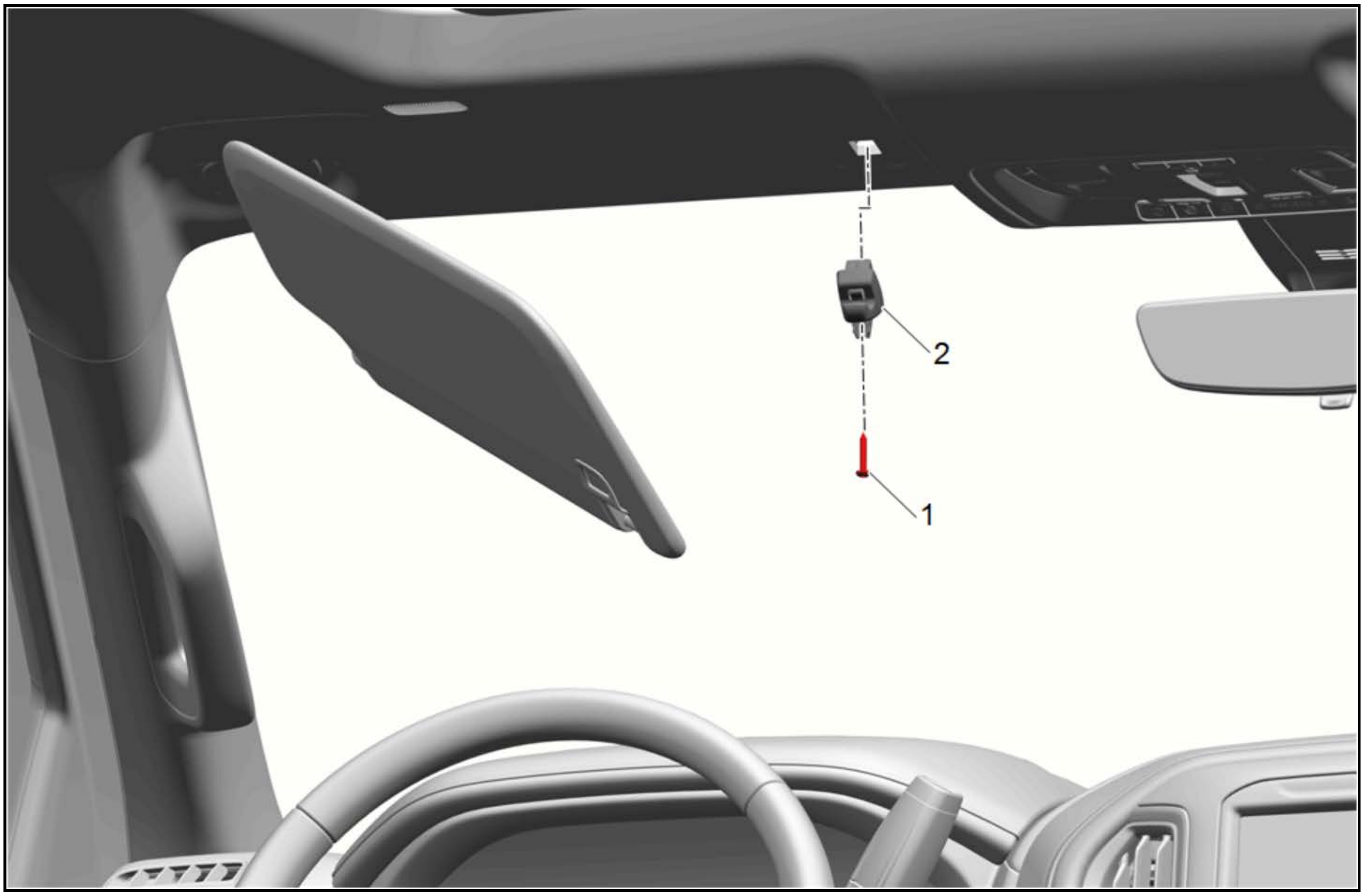


20. Connect the electrical connectors.
21. Roof Console (1) » Install



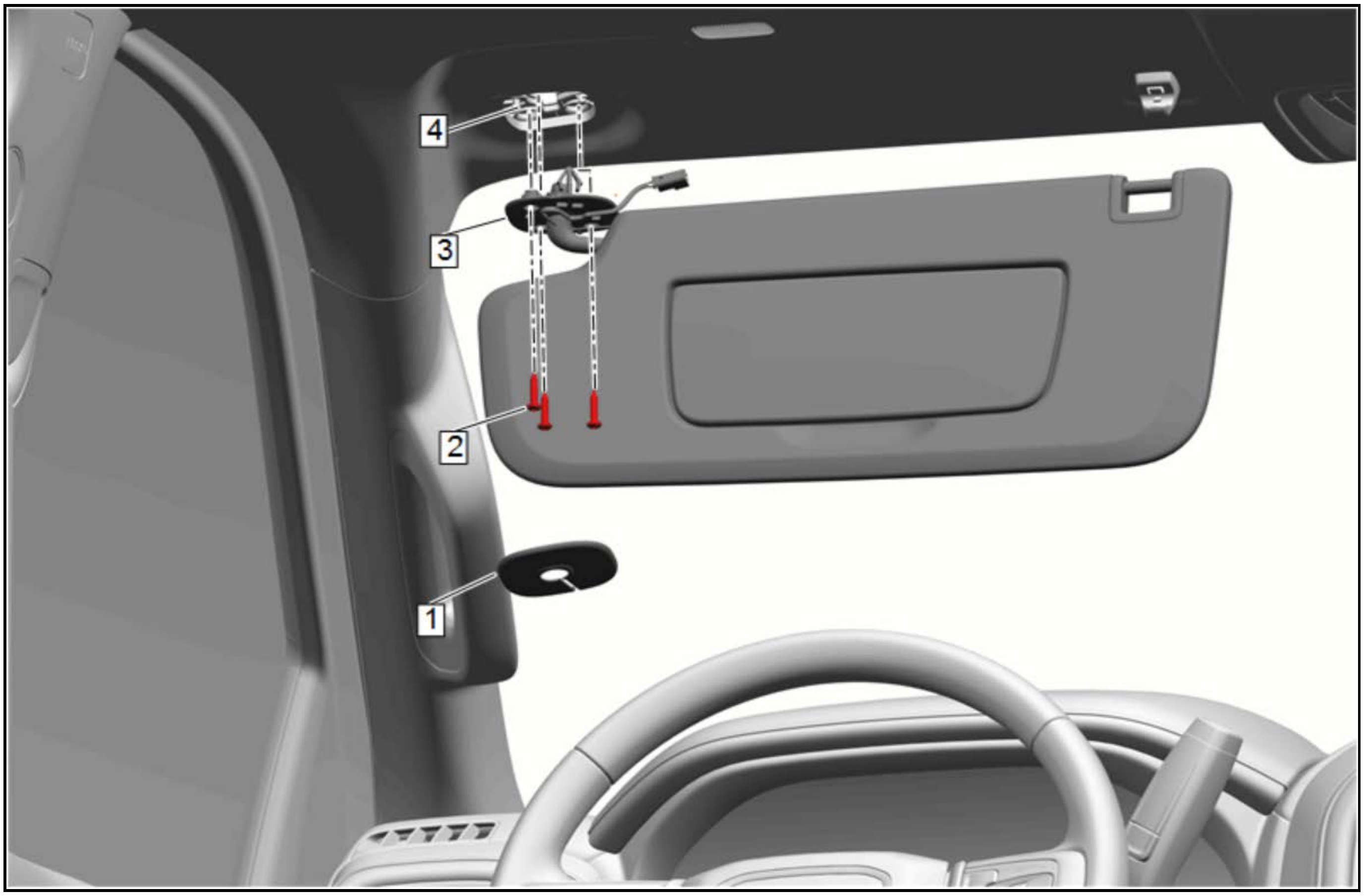
Note: Use a light to locate the fastener boss when installing the fasteners. Pull down on the forward end of the roof console to verify that the retention clips are secure.

22. Roof Console Bolt (2) » Install and tighten [2x]
23. Roof Console Lamp Trim Plate (1) » Install [2x]



Note: Left side shown, right side similar.

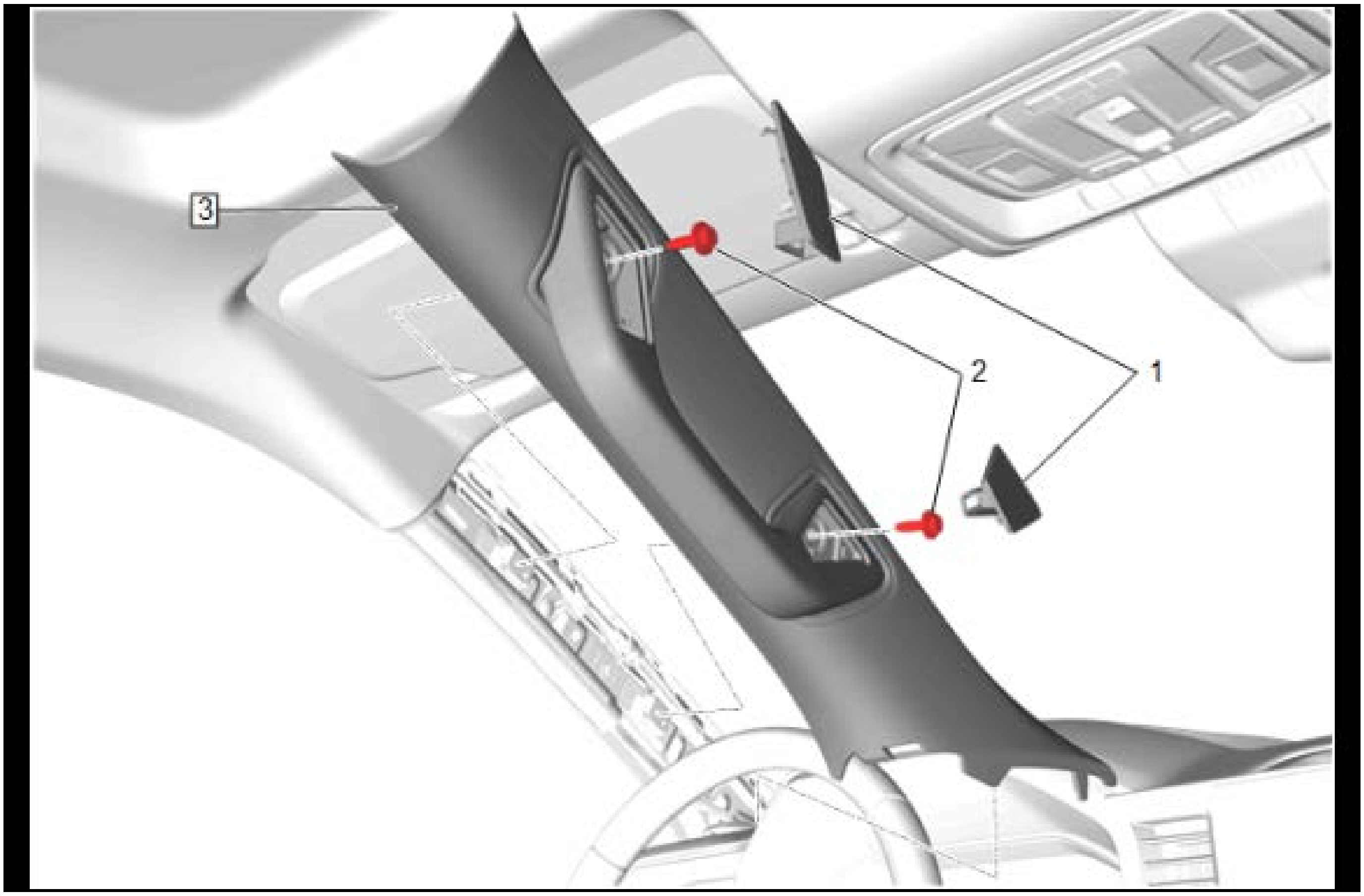
24. Sunshade Support - Left Side and Right Side (2) » Install [2x]
25. Sunshade Support Bolt - Left Side and Right Side (1) » Install and tighten [2x]



5000920

Note: Left side shown, right side similar.

26. Connect the electrical connector.
27. Install the retainer (4) that attaches the sunshade (3) to the headliner on both sides of the vehicle.
28. Sunshade - Left Side and Right Side (3) » Install [2x]
29. Sunshade Bolt - Left Side and Right Side (2) » Install and tighten [6x]
30. Sunshade Retainer Bolt Cover - Left Side and Right Side (1) » Install [2x]



5901058

Note: Left side shown, right side similar.

31. Ensure tab is fully seated in the instrument panel upper trim panel prior to engaging upper clip on both sides of the vehicle.
32. Windshield Garnish Molding - Left Side and Right Side (3) » Install [2x]
33. Windshield Pillar Assist Handle Bolt - Left Side and Right Side (2) » Install and tighten [4x]
34. Windshield Pillar Assist Handle Cover - Left Side and Right Side (1) » Install [4x]
35. Enable the SIR System. SIR Disabling and Enabling on page 8-481

Front Seat Outboard Seat Back Airbag Replacement (Manual)

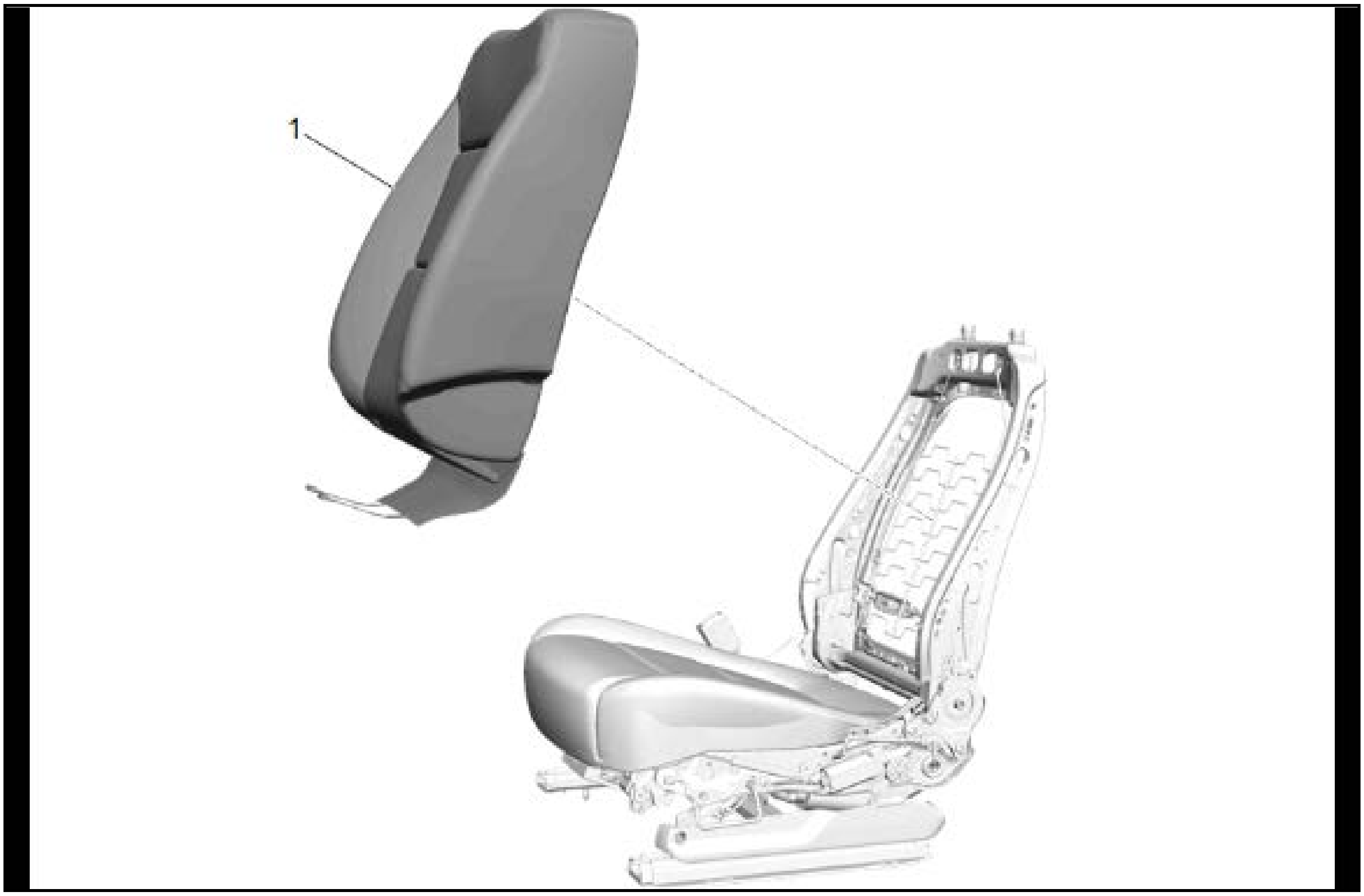
Object-ID=6307310 Owner=Semposki, Scott LMD=29-Mar-2023 LMB=Sasina, Robert

Warning: SIO-ID=2052249 LMD=24-Jan-2008 ***Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:***

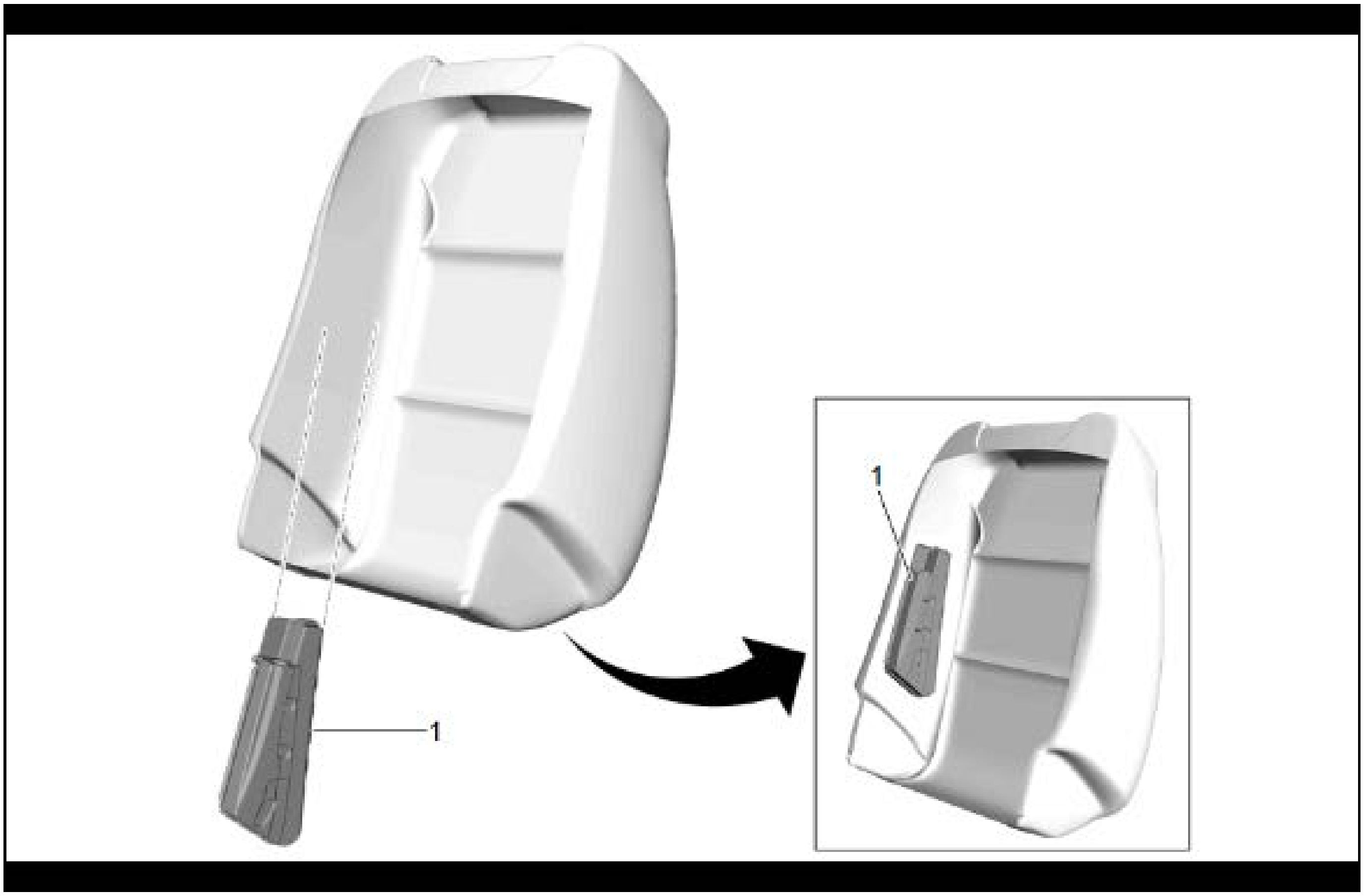
- ***The seat cushion frame***
- ***The seat recliner, if equipped***
- ***The seat adjuster***
- ***The seat back frame***

Failure to do so may cause future personal injury.

Removal Procedure



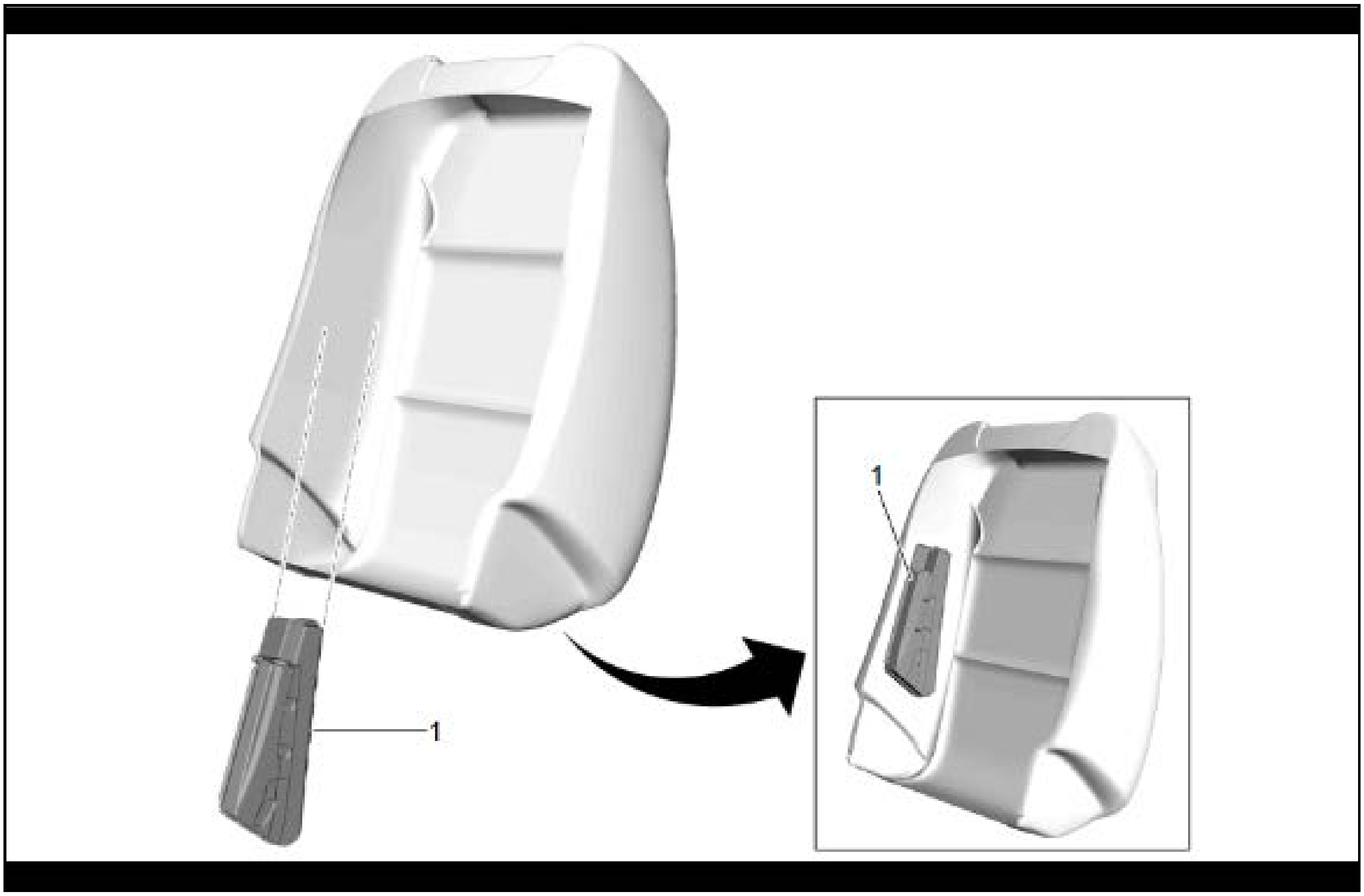
1. Front Seat Back Cover and Pad (1) » Remove



Note: Some components not shown for graphic clarity.

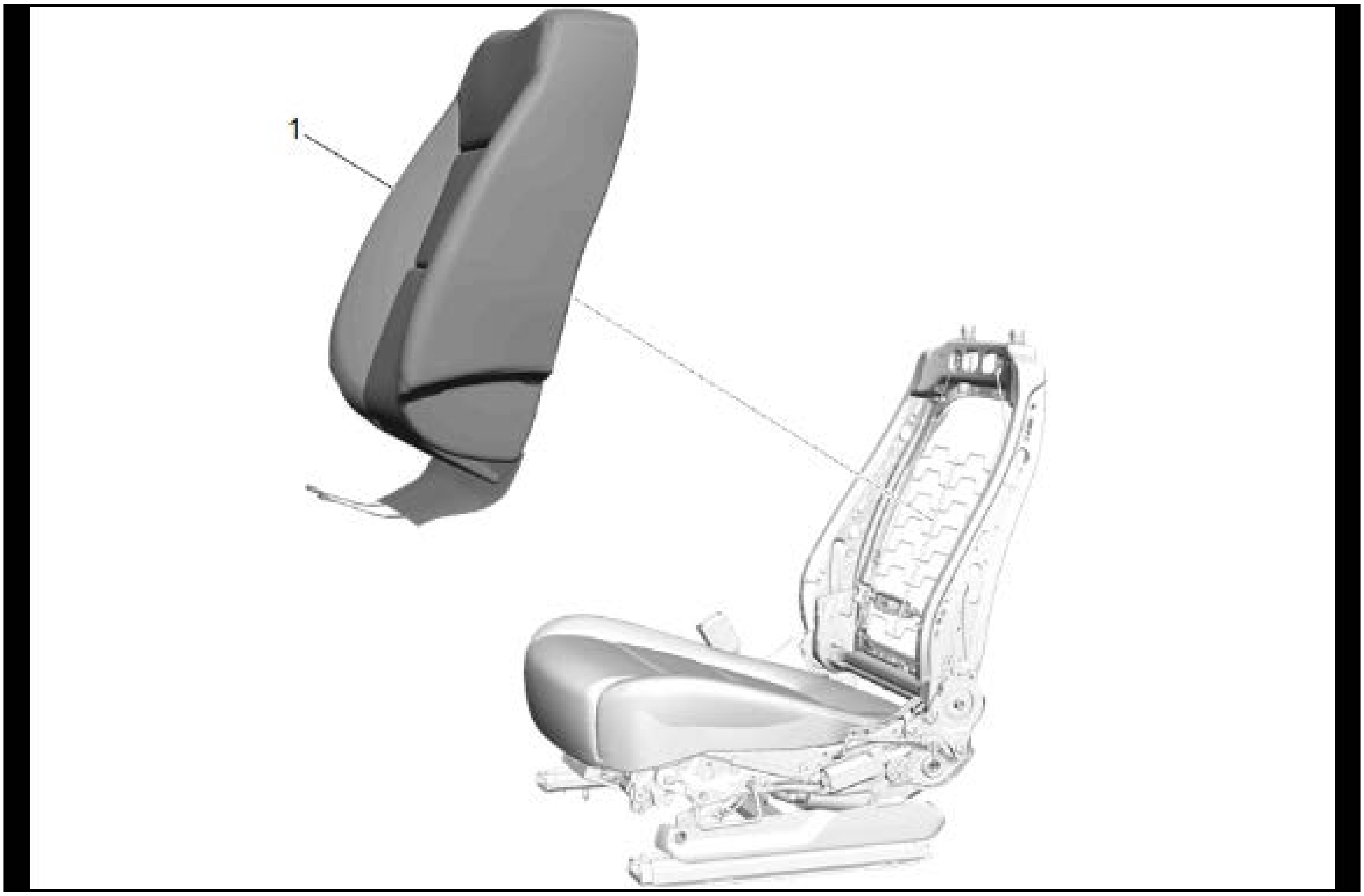
2. Remove the front seat outboard seat back airbag (1) through the bottom opening of the front seat back cover chute.

Installation Procedure



Note: Some components not shown for graphic clarity.

1. Install the front seat outboard seat back airbag (1) into the bottom opening of the front seat back cover chute.



5642535

2. Front Seat Back Cover and Pad (1) » Install
3. *Inflatable Restraint Module Handling and Scrapping on page 8-659*

Front Seat Outboard Seat Back Airbag Replacement (Power)

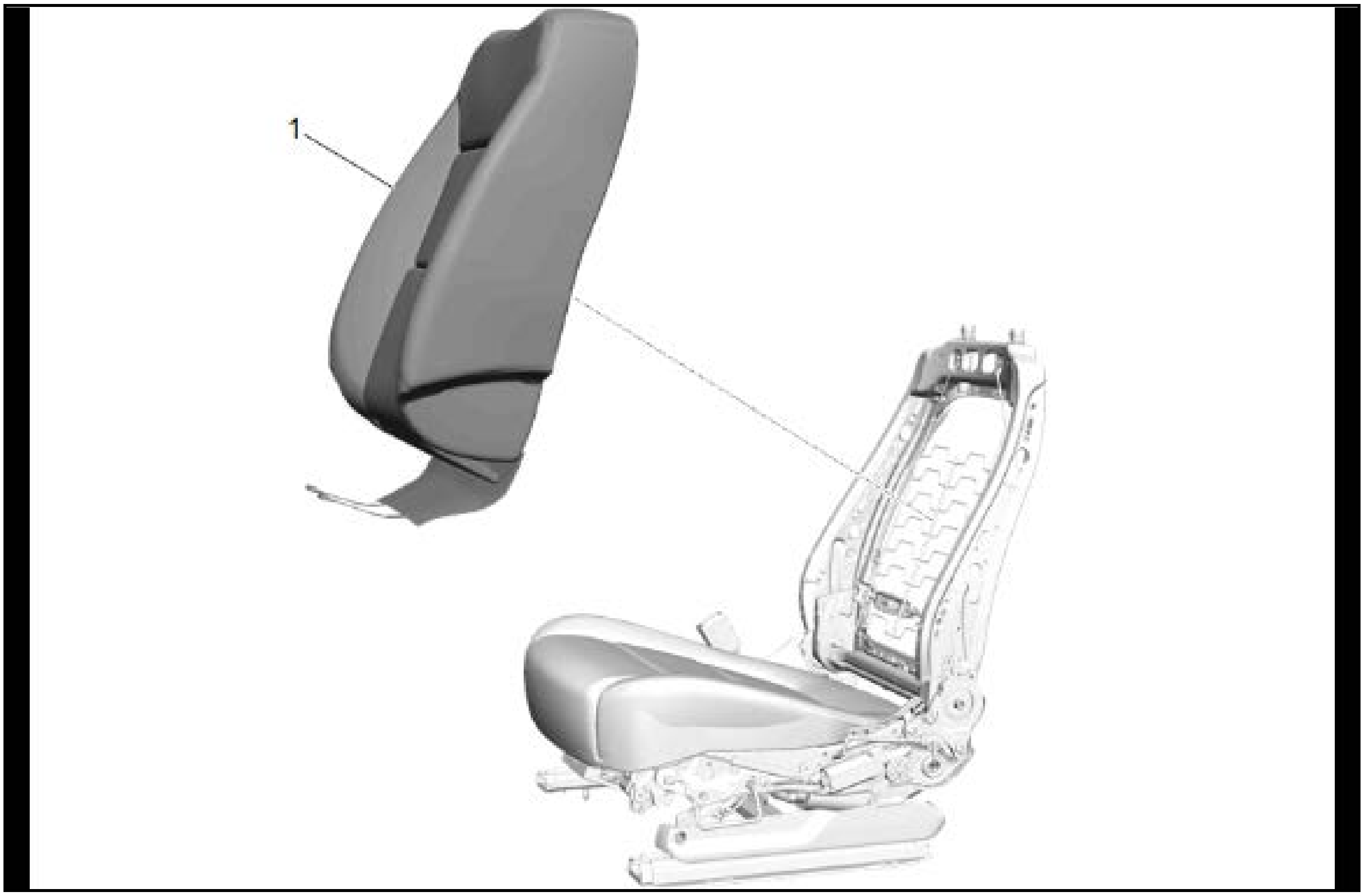
Object-ID=6307312 Owner=Semposki, Scott LMD=29-Mar-2023 LMB=Sasina, Robert

Warning: SIO-ID=2052249 LMD=24-Jan-2008 ***Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:***

- ***The seat cushion frame***
- ***The seat recliner, if equipped***
- ***The seat adjuster***
- ***The seat back frame***

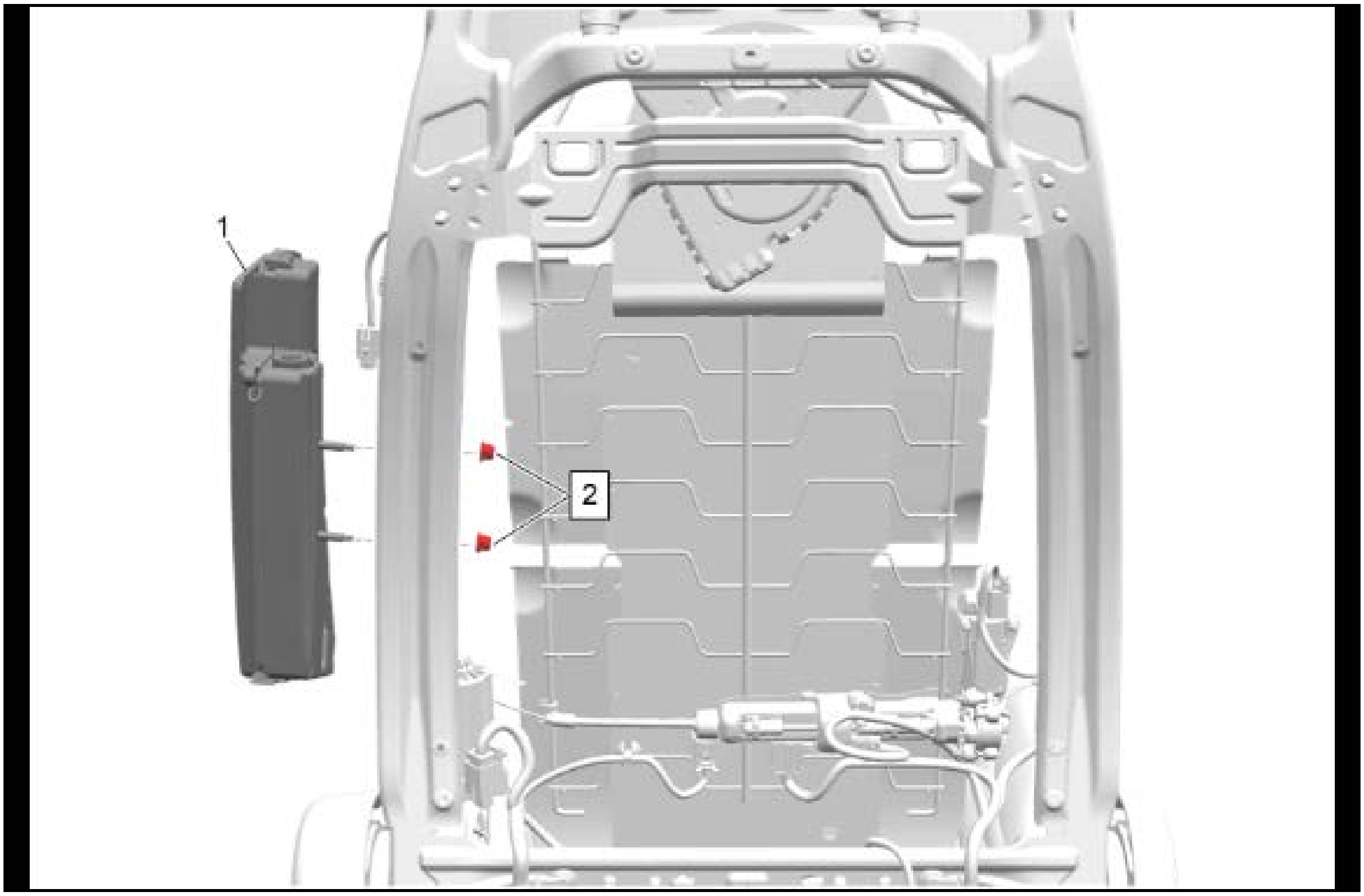
Failure to do so may cause future personal injury.

Removal Procedure



5642535

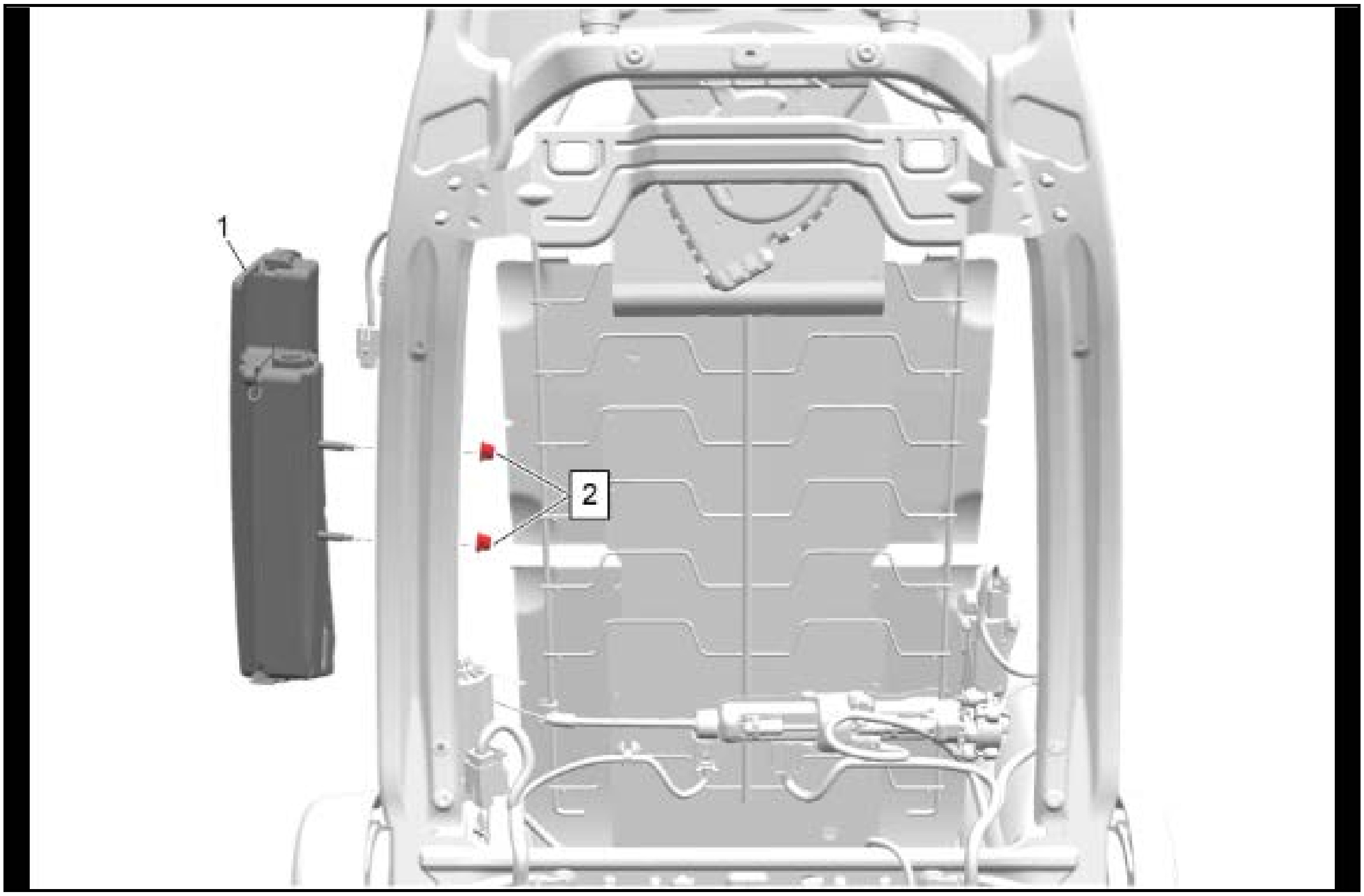
1. Front Seat Back Cover and Pad (1) » Remove



Note: Some components not shown for graphic clarity.

2. Remove the connector position assurance (CPA) from the module electrical connector.
3. Disconnect the electrical connector.
4. Front Seat Side Airbag Nut (2) » Remove [2x]
5. Front Seat Outboard Seat Back Airbag (1) » Remove [2x]

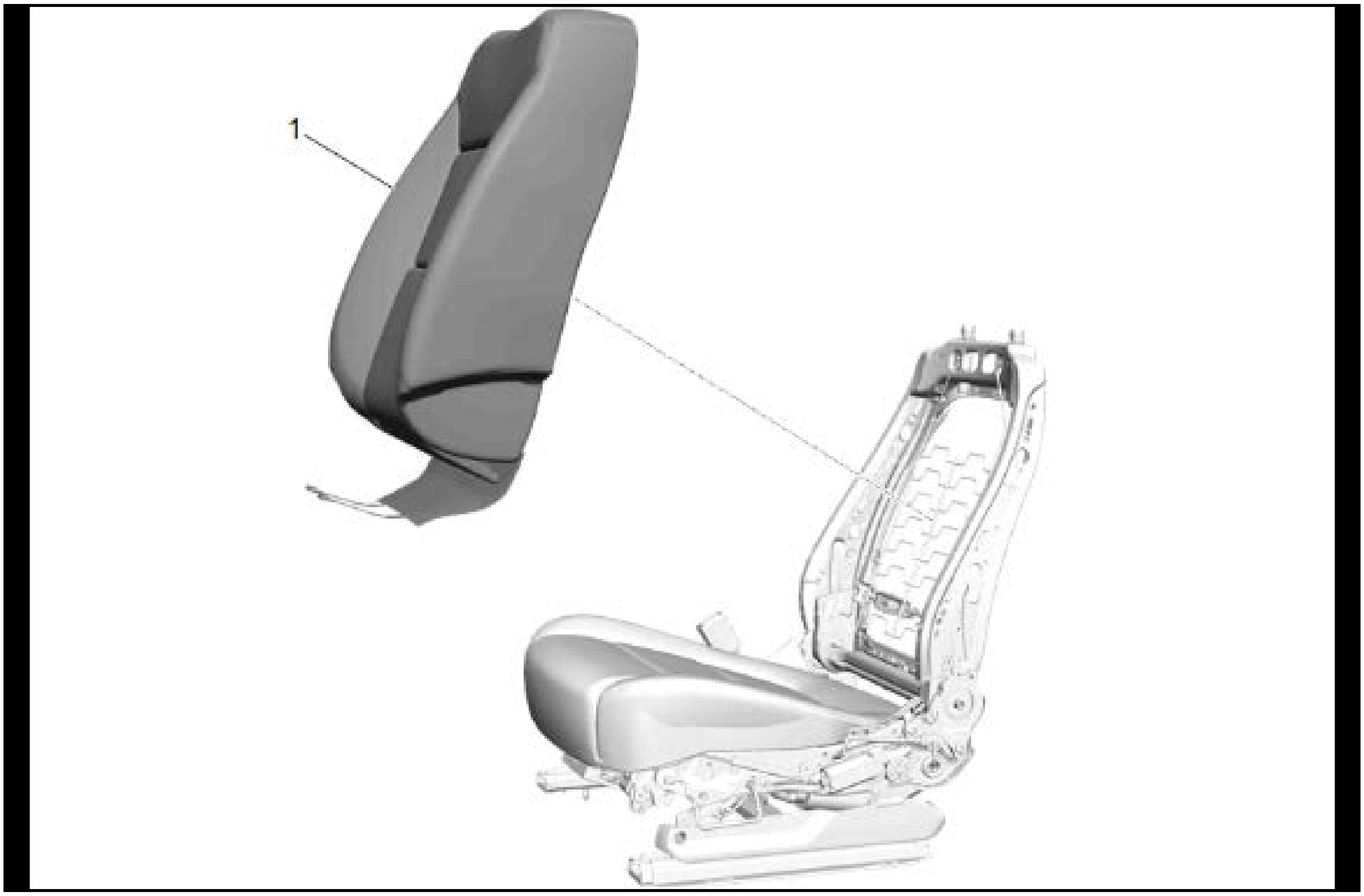
Installation Procedure



6306819

Note: Some components not shown for graphic clarity.

1. Front Seat Outboard Seat Back Airbag (1) » Install [2x]
2. Front Seat Side Airbag Nut (2) » Install Install and tighten [2x] — *Fastener Specifications on page 8-427*
3. Connect the electrical connectors.
4. Install the connector position assurance (CPA) from the module electrical connector.



5642535

5. Front Seat Back Cover and Pad (1) » Install
6. [Inflatable Restraint Module Handling and Scrapping on page 8-659]

Airbag Side Impact Rear Sensor Replacement (Double Cab)

Object-ID=5910583 Owner=Cameli, Jordan LMD=07-Feb-2022 LMB=Dwamena, Terrance

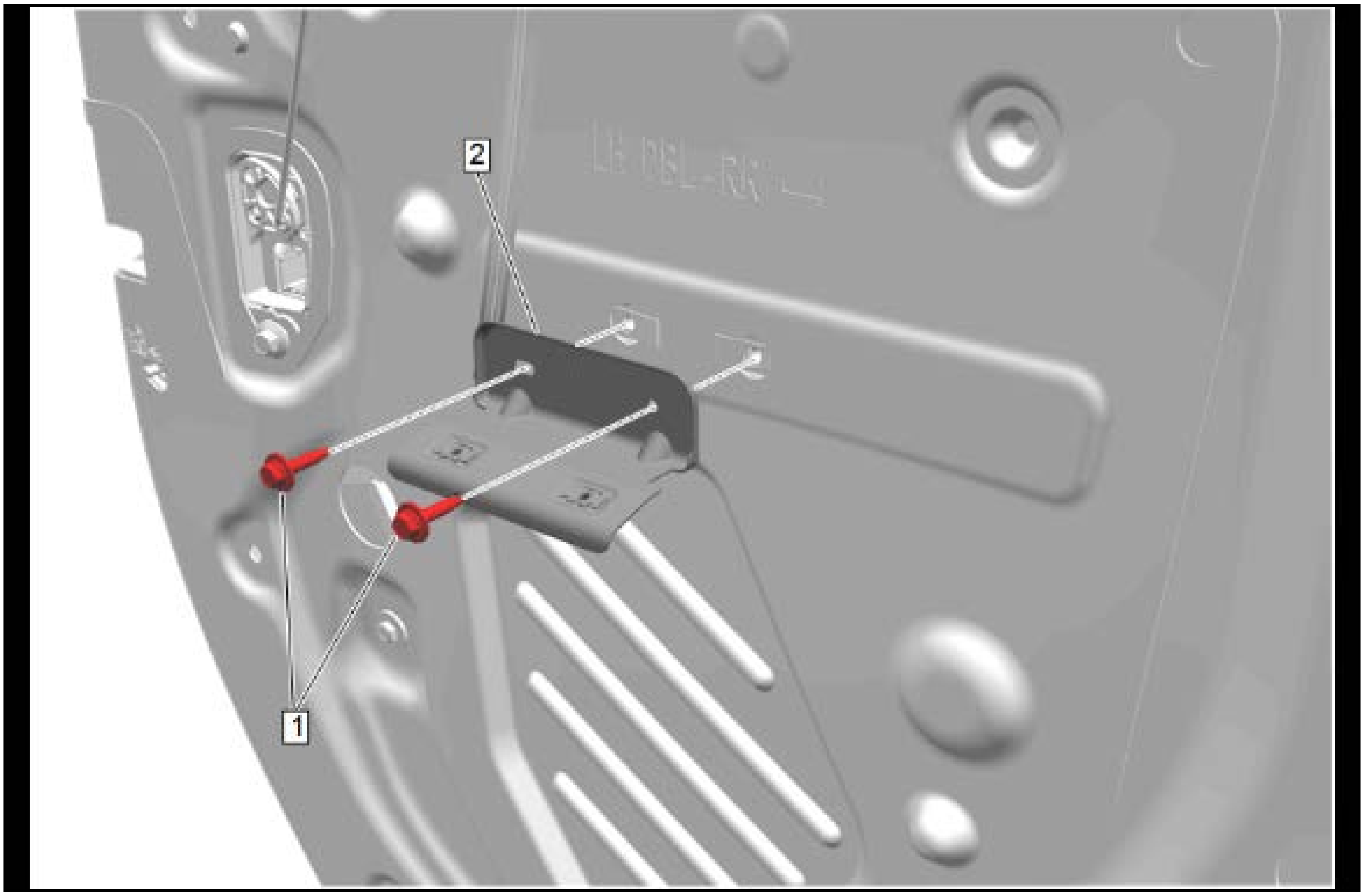
Warning: SIO-ID=2052249 LMD=24-Jan-2008 ***Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:***

- ***The seat cushion frame***
- ***The seat recliner, if equipped***
- ***The seat adjuster***
- ***The seat back frame***

Failure to do so may cause future personal injury.

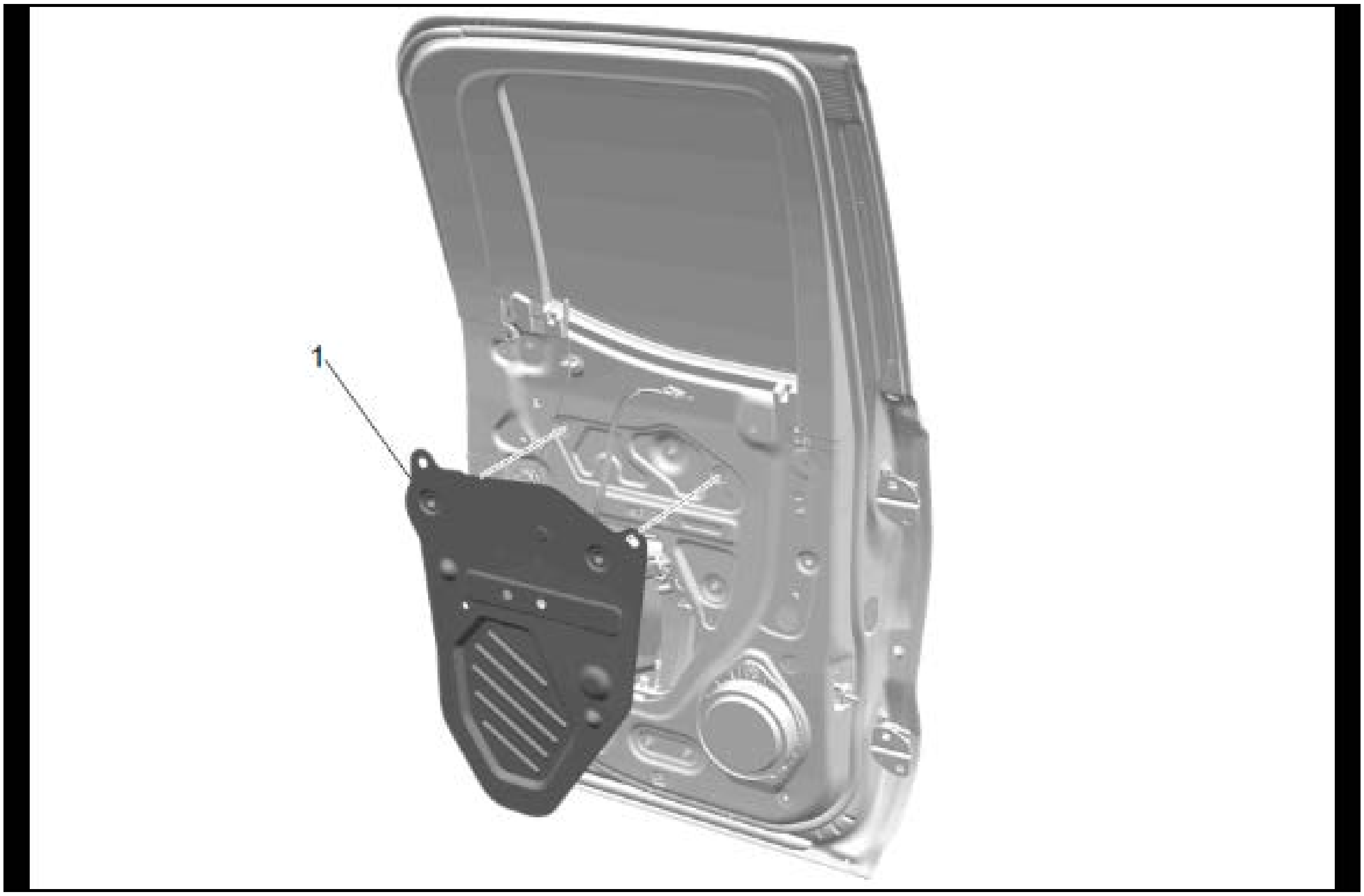
Removal Procedure

1. Disable the SIR system. [SIR Disabling and Enabling on page 8-481]
2. Rear Side Door Trim » Remove



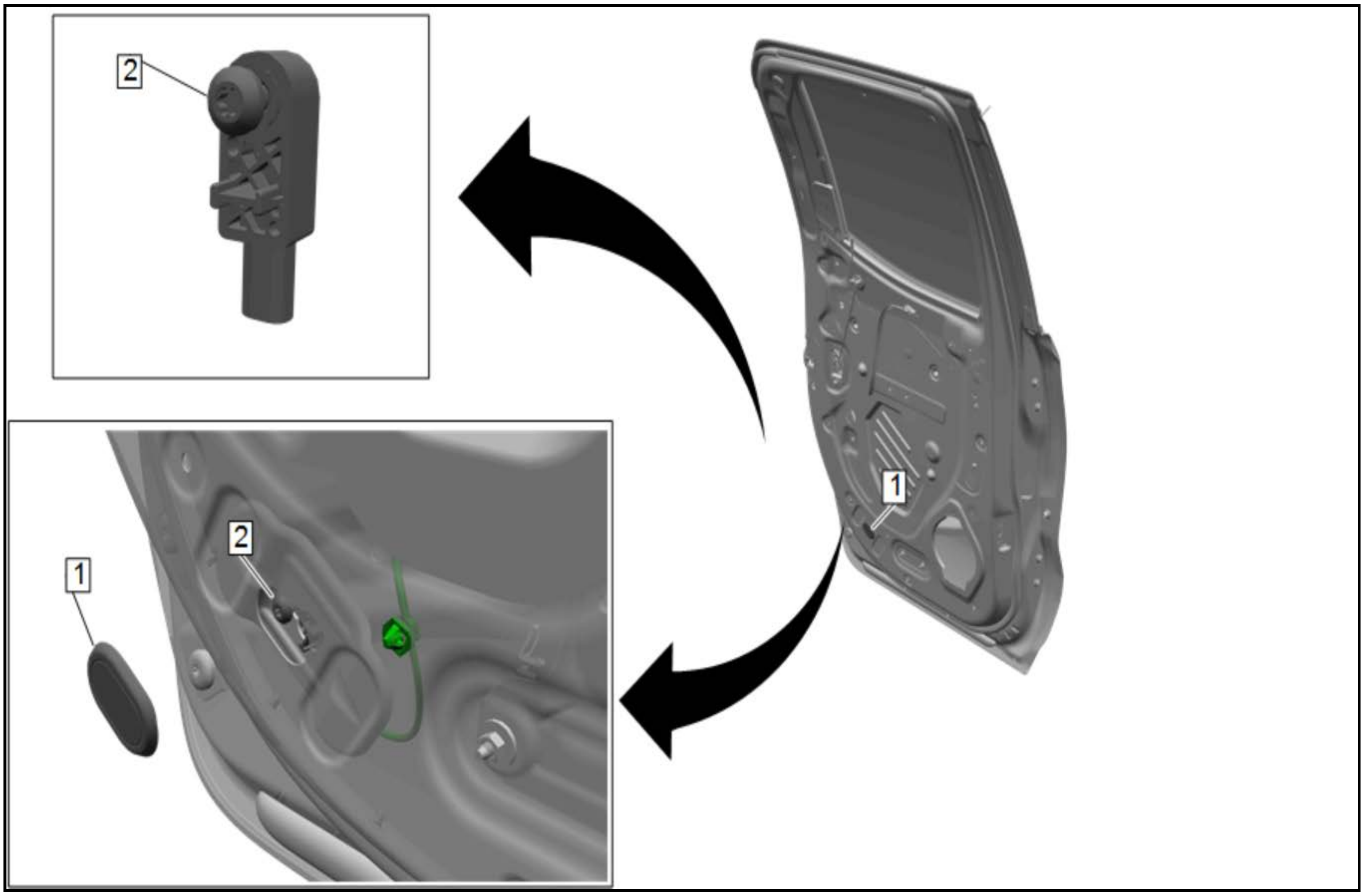
5909970

3. Rear Side Door Armrest Pull Cup Bracket Bolt (1) » Remove [2x]
4. Rear Side Door Armrest Pull Cup Bracket (2) » Remove



5909975

5. Route the rear side door inside handle cable through hole in deflector (1).
6. Auxiliary Rear Side Door Water Deflector (1) » Remove

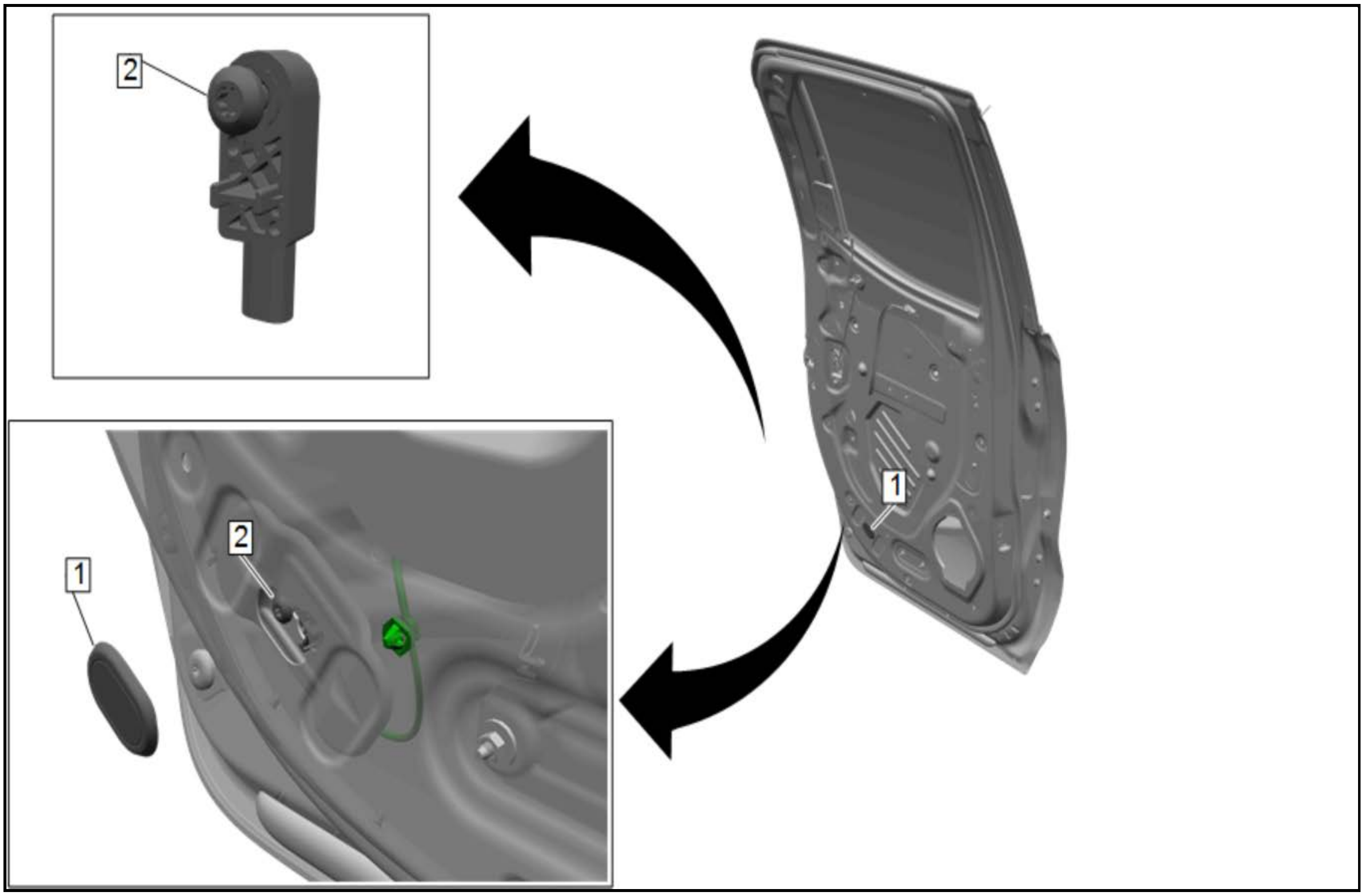


5129019

Note: Integral sensor assembly bolt uses Left Hand threads. Use counterclockwise rotation to loosen bolt at TORX® tip end. If accessing at pan head end of the bolt, use clockwise rotation to loosen bolt.

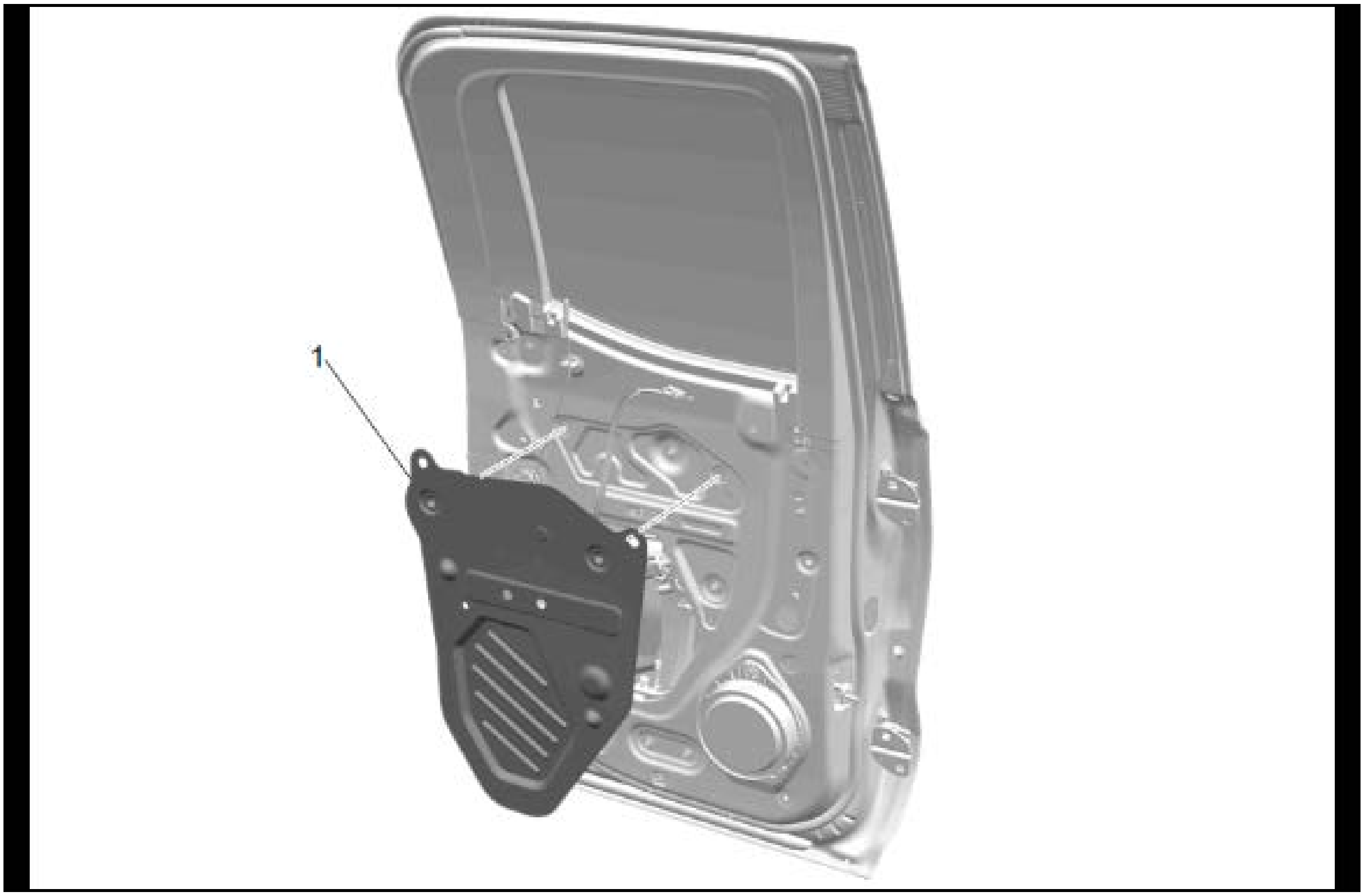
7. Rear Side Door Inner Panel Hole Plug (1) » Remove
8. Loosen the fastener and slide the sensor out of the door opening.
9. The bolt is integral to the sensor, Do NOT remove separately.
10. Disconnect the electrical connector.
11. Airbag Side Impact Rear Sensor (2) » Remove

Installation Procedure



5129019

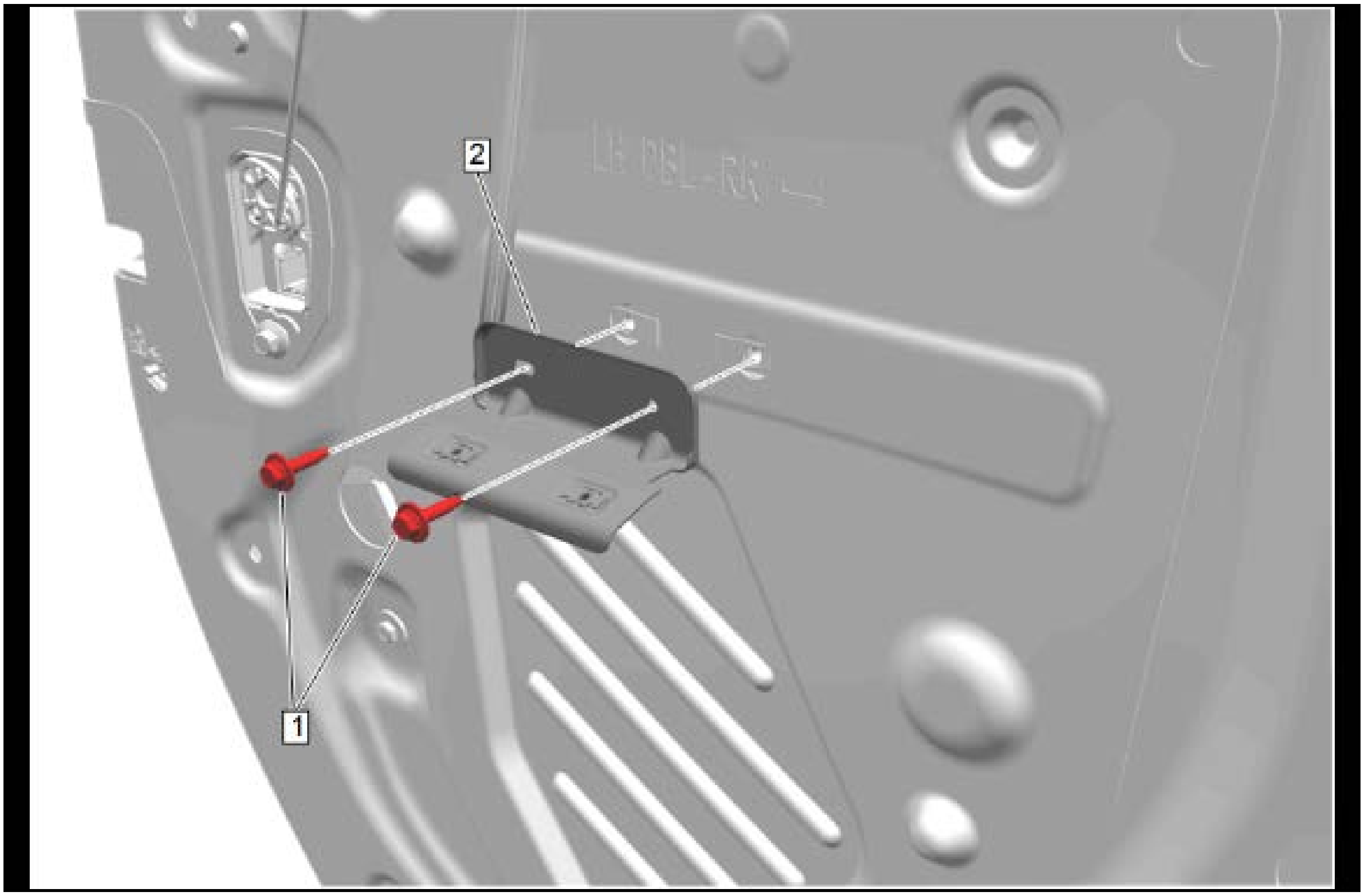
1. Connect the electrical connector.
2. Slide the sensor into the keyhole slot.
3. Airbag Side Impact Rear Sensor (1) » Install and tighten — *Fastener Specifications on page 8-427*



5909975

Note: When reinstalling water deflector ensure integral locators are installed properly and that water deflector is secured and leakproof.

4. Route the rear side door inside handle cable through hole in deflector (1).
5. Auxiliary Rear Side Door Water Deflector (1) » Install



5909970

6. Rear Side Door Armrest Pull Cup Bracket (2) » Install
7. Rear Side Door Armrest Pull Cup Bracket Bolt (1) » Install and tighten [2x]
8. Rear Side Door Trim » Install
9. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*.

Airbag Side Impact Rear Sensor Replacement (Crew Cab)

Object-ID=5908003 Owner=Cameli, Jordan LMD=13-Jan-2022 LMB=Elliott, William

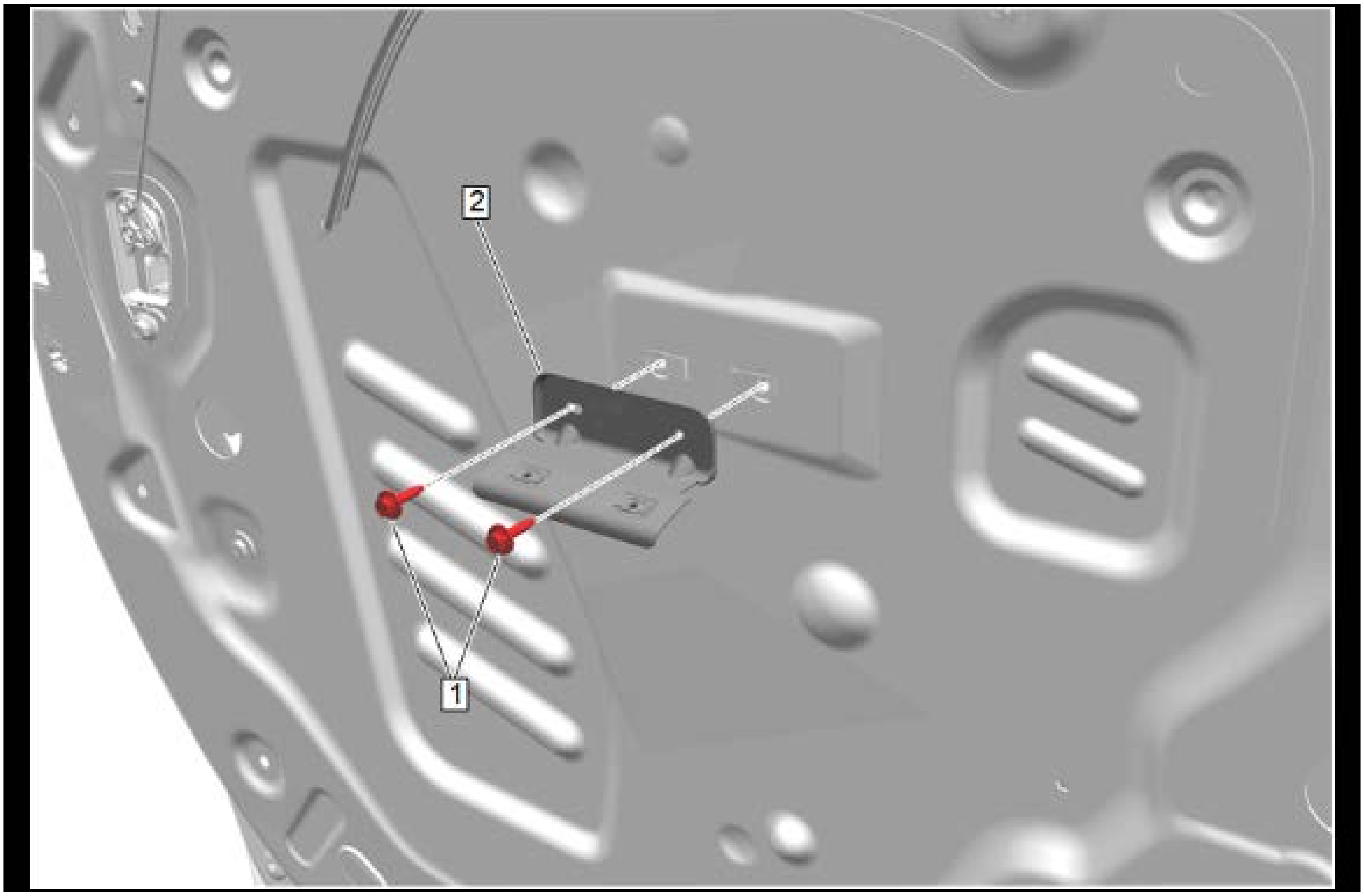
Warning: SIO-ID=2052249 LMD=24-Jan-2008 ***Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:***

- ***The seat cushion frame***
- ***The seat recliner, if equipped***
- ***The seat adjuster***
- ***The seat back frame***

Failure to do so may cause future personal injury.

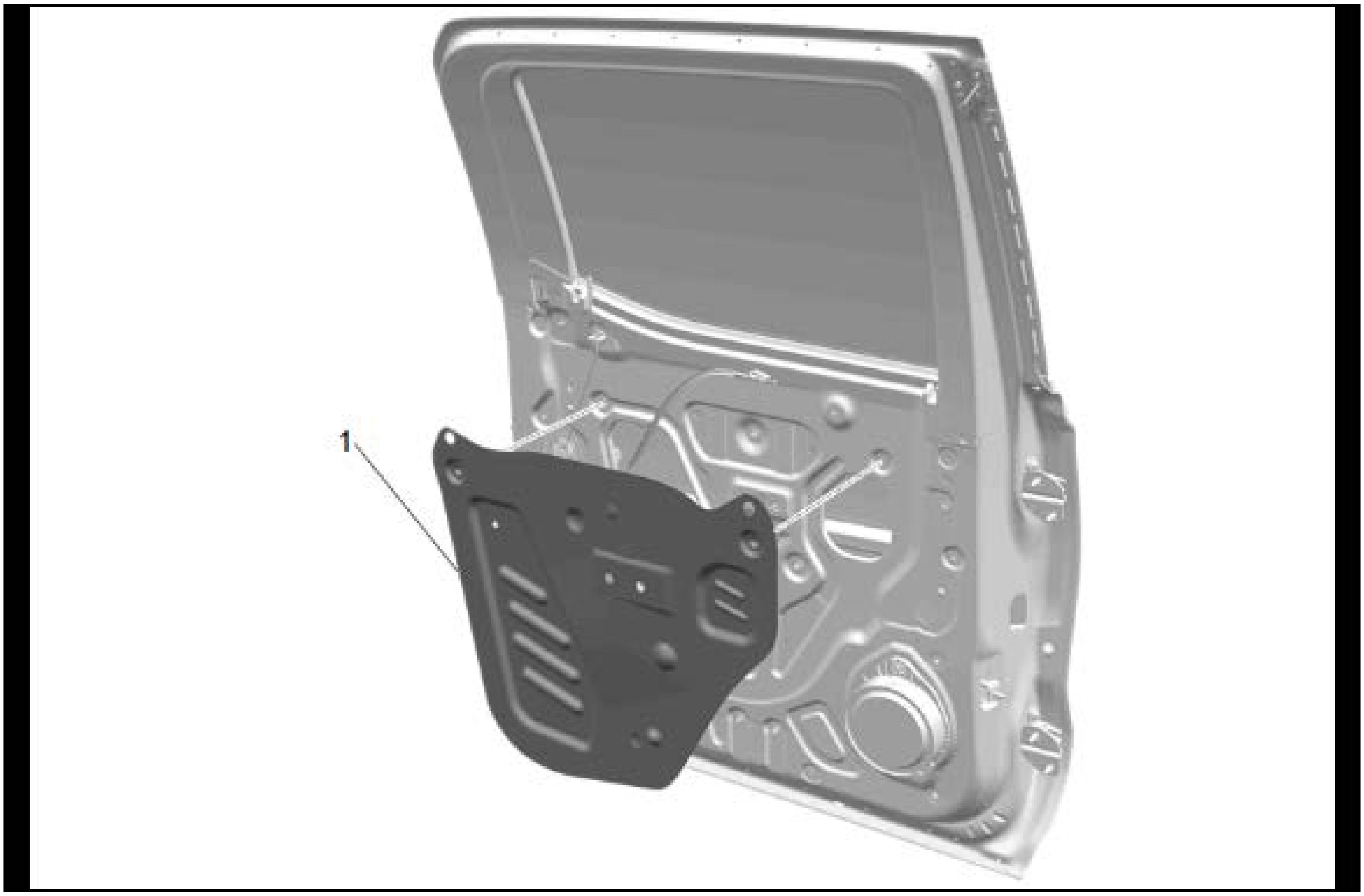
Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*
2. Rear Side Door Trim » Remove



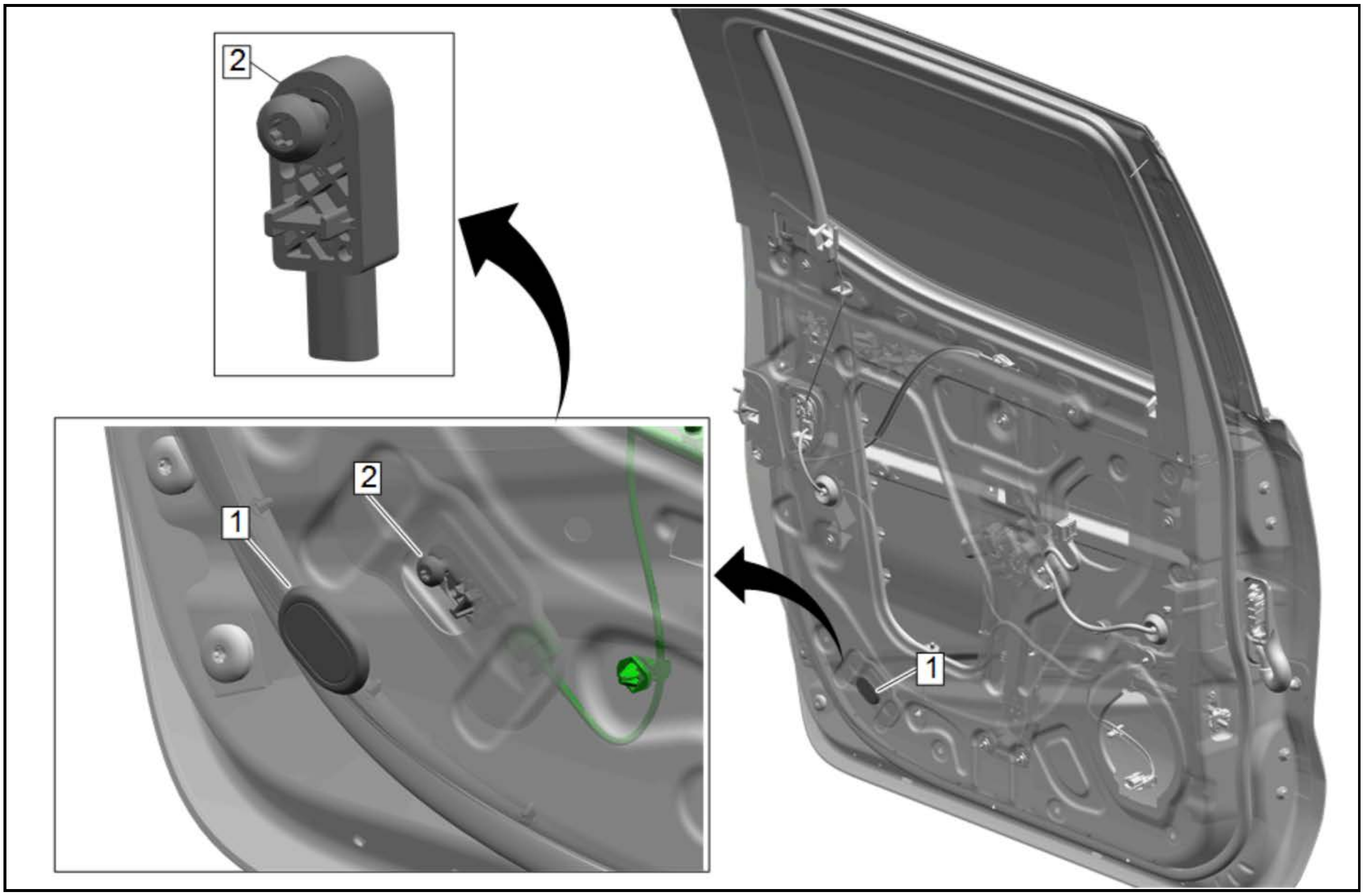
5904703

3. Rear Side Door Armrest Pull Cup Bolt (1) » Remove [2x]
4. Rear Side Door Armrest Pull Cup Bracket (2) » Remove



5904710

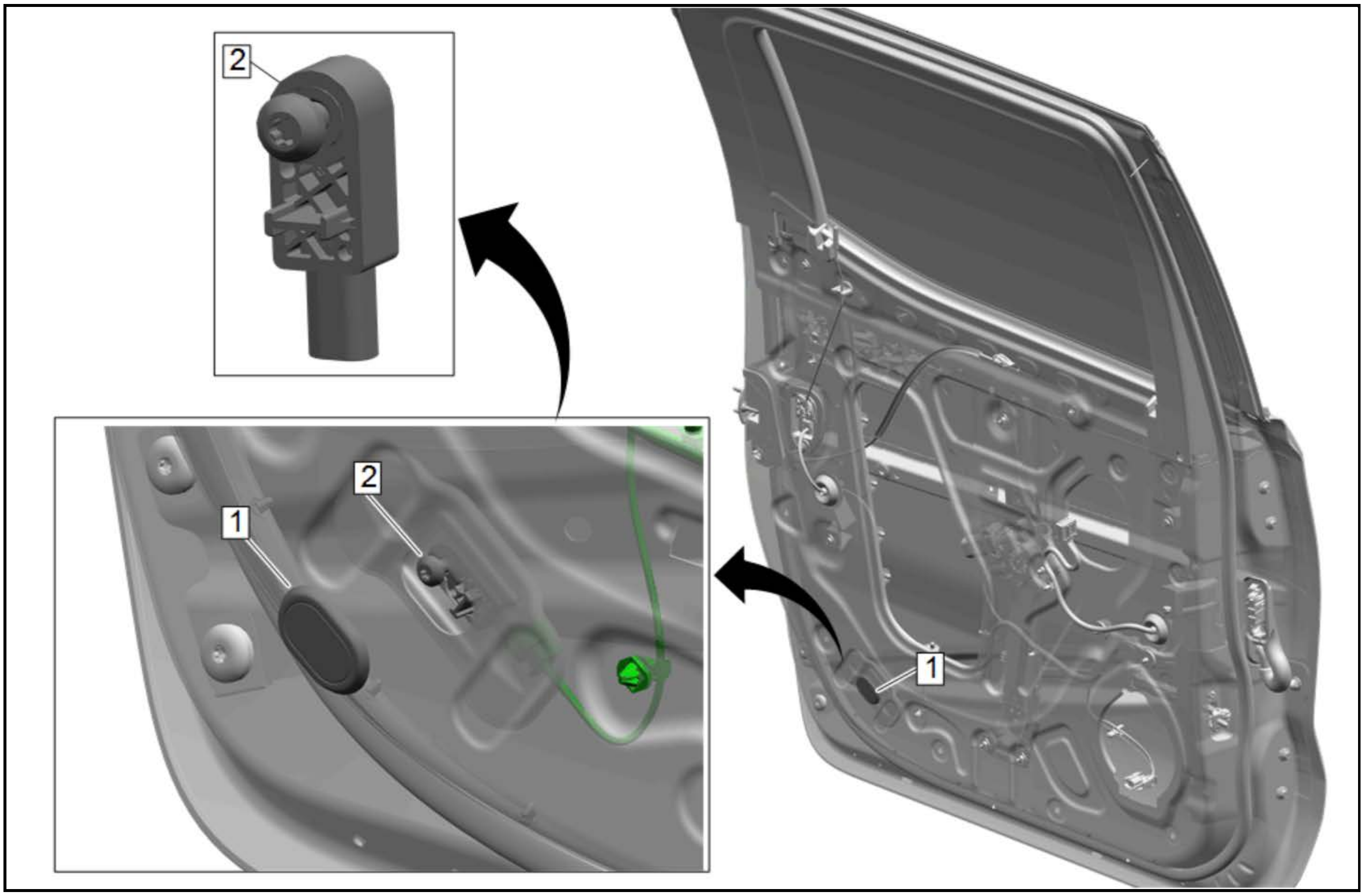
5. Route the rear side door inside handle cable through hole in deflector (1).
6. Auxiliary Rear Side Door Water Deflector (1) » Remove



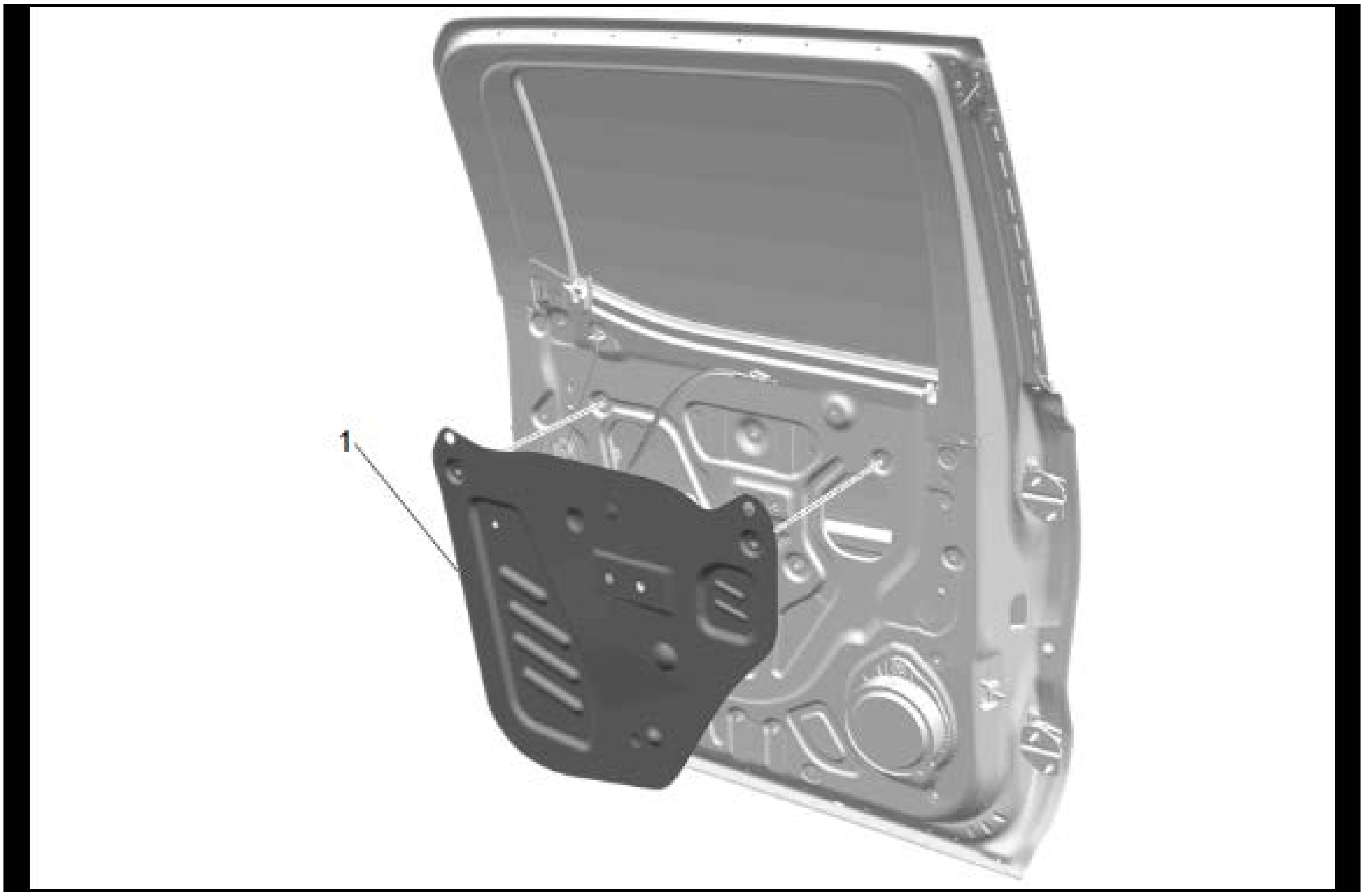
Note: Integral sensor assembly bolt uses Left Hand threads. Use counterclockwise rotation to loosen bolt at TORX® tip end. If accessing at pan head end of the bolt, use clockwise rotation to loosen bolt.

7. Rear Side Door Inner Panel Hole Plug (1) » Remove
8. Loosen the fastener and slide the sensor out of the door opening.
9. The bolt is integral to the sensor, Do NOT remove separately.
10. Disconnect the electrical connector.
11. Airbag Side Impact Rear Sensor (2) » Remove

Installation Procedure

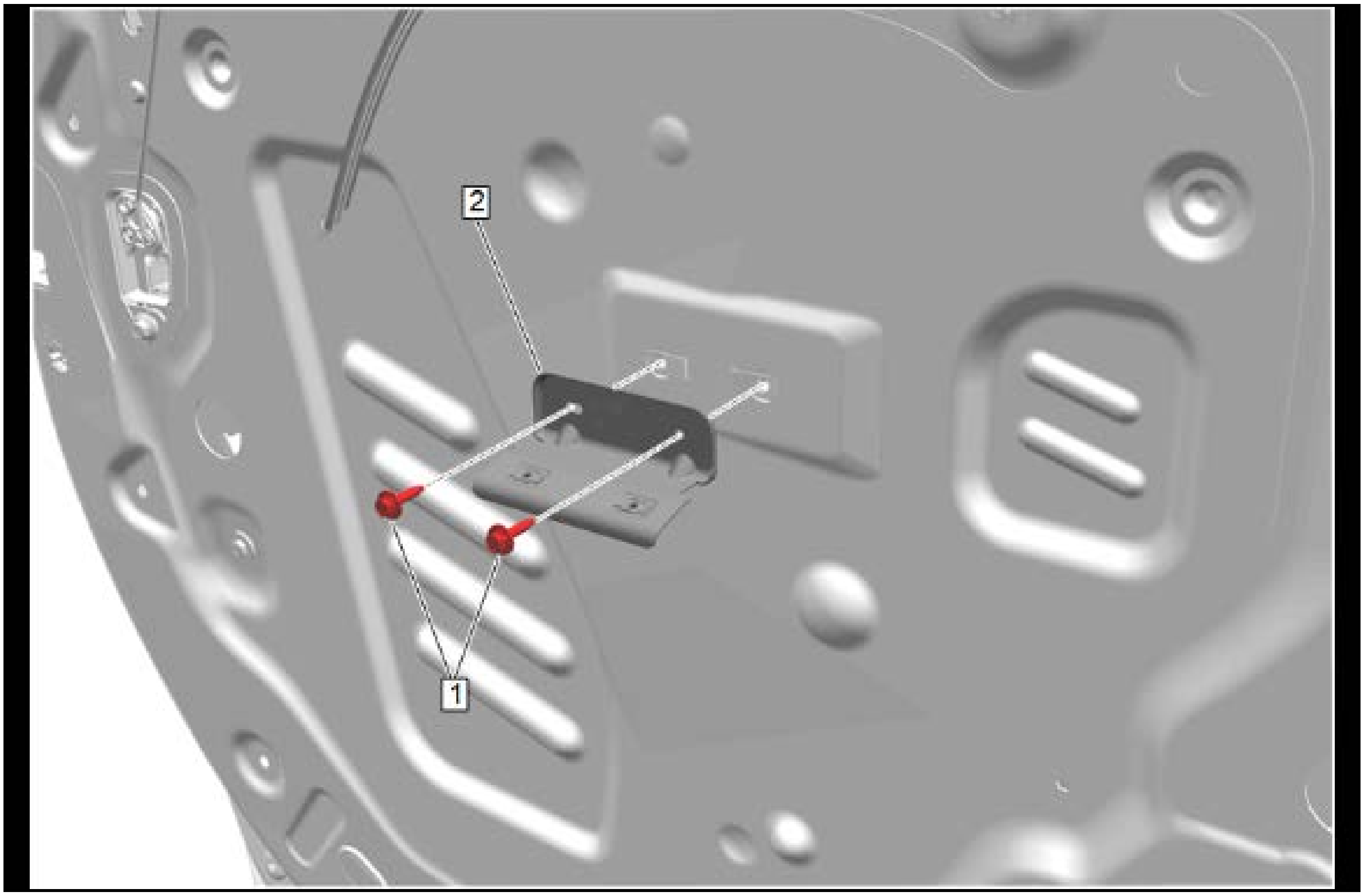


1. Connect the electrical connector.
2. Slide the sensor into the keyhole slot.
3. Airbag Side Impact Rear Sensor (1) » Install and tighten — *Fastener Specifications on page 8-427*



Note: When reinstalling water deflector ensure integral locators are installed properly and that water deflector is secured and leakproof.

4. Route the rear side door inside handle cable through hole in deflector (1).
5. Auxiliary Rear Side Door Water Deflector (1) » Install



6. Rear Side Door Armrest Pull Cup Bracket (2) » Install
7. Rear Side Door Armrest Pull Cup Bolt (1) » Install and tighten [2x]
8. Rear Side Door Trim » Install
9. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*.

Airbag Side Impact Rear Sensor Replacement

Object-ID=5630578 Owner=Schaller, Dawn LMD=16-Feb-2022 LMB=VanBuskirk, Mark

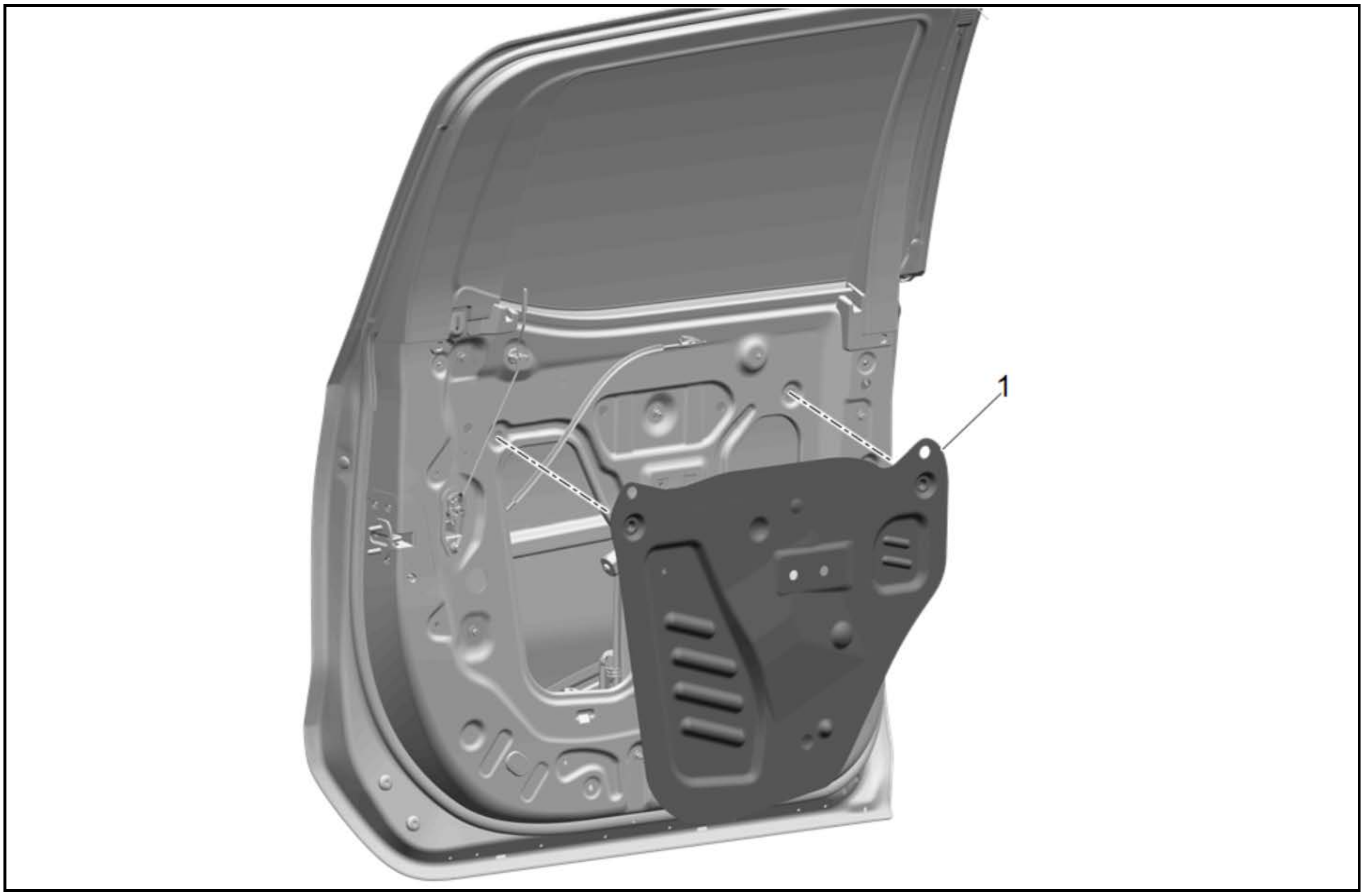
Warning: SIO-ID=2052249 LMD=24-Jan-2008 ***Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:***

- ***The seat cushion frame***
- ***The seat recliner, if equipped***
- ***The seat adjuster***
- ***The seat back frame***

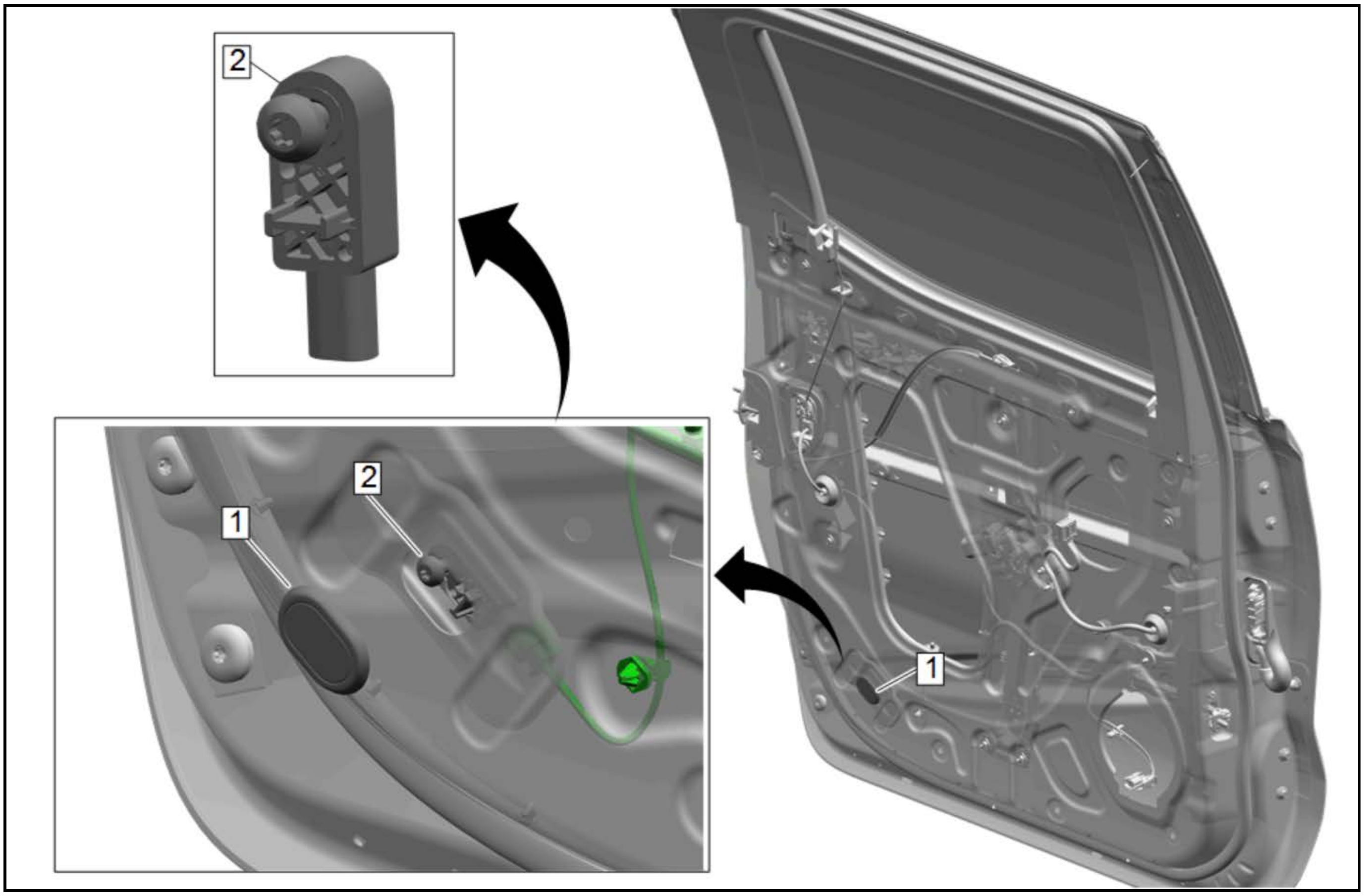
Failure to do so may cause future personal injury.

Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*
2. Rear Side Door Trim » Remove



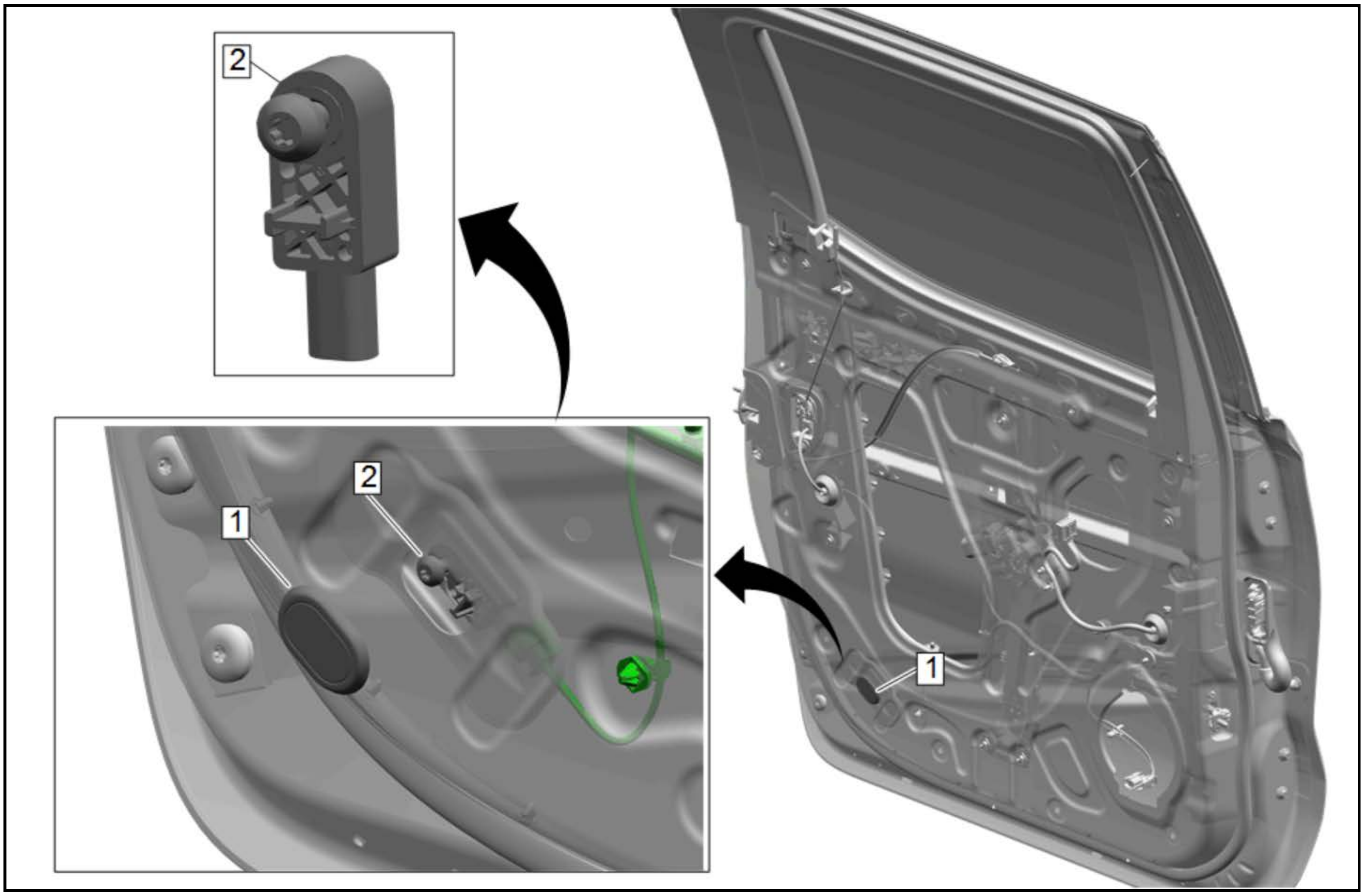
3. Auxiliary Rear Side Door Water Deflector (1) »
   Remove



Note: Integral sensor assembly bolt uses Left Hand threads. Use counterclockwise rotation to loosen bolt at TORX® tip end. If accessing at pan head end of the bolt, use clockwise rotation to loosen bolt.

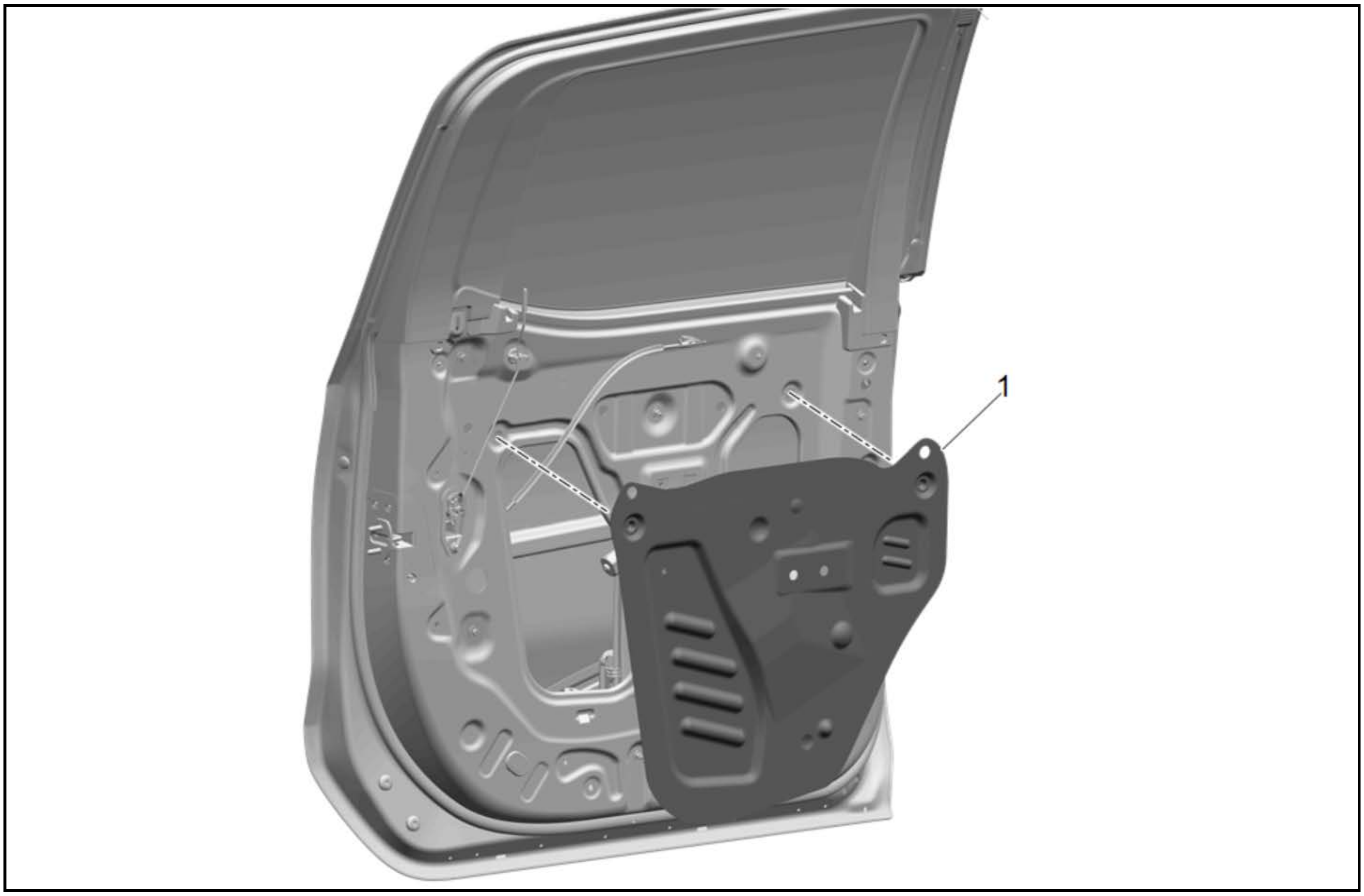
4. Rear Side Door Inner Panel Hole Plug (1) » Remove
5. Loosen the fastener and slide the sensor out of the door opening.
6. The bolt is integral to the sensor, Do NOT remove separately.
7. Disconnect the electrical connector.
8. Airbag Side Impact Rear Sensor (2) » Remove

Installation Procedure



5020025

1. Connect the electrical connector.
2. Slide the sensor into the keyhole slot.
3. Airbag Side Impact Rear Sensor (1) » Install and tighten — *Fastener Specifications on page 8-427*



5000498

Note: When reinstalling water deflector (1) ensure integral locators are installed properly and that water deflector is secured and leakproof.

4. Auxiliary Rear Side Door Water Deflector (1) » Install
5. Rear Side Door Trim » Install
6. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*.

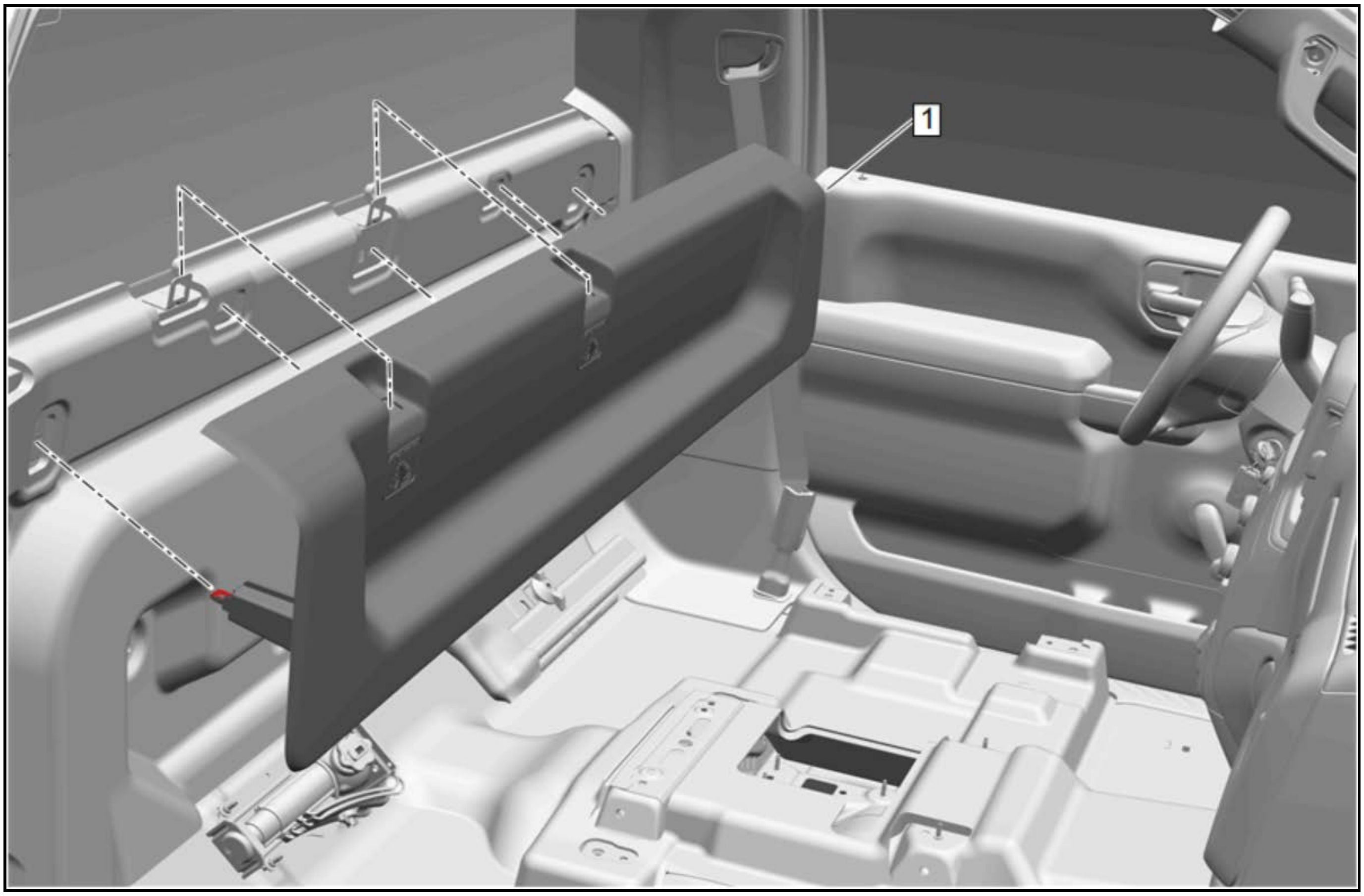
Front Seat Belt Retractor Replacement (Regular Cab)

Object-ID=5969742 Owner=Cameli, Jordan LMD=01-Feb-2022 LMB=Sasina, Robert

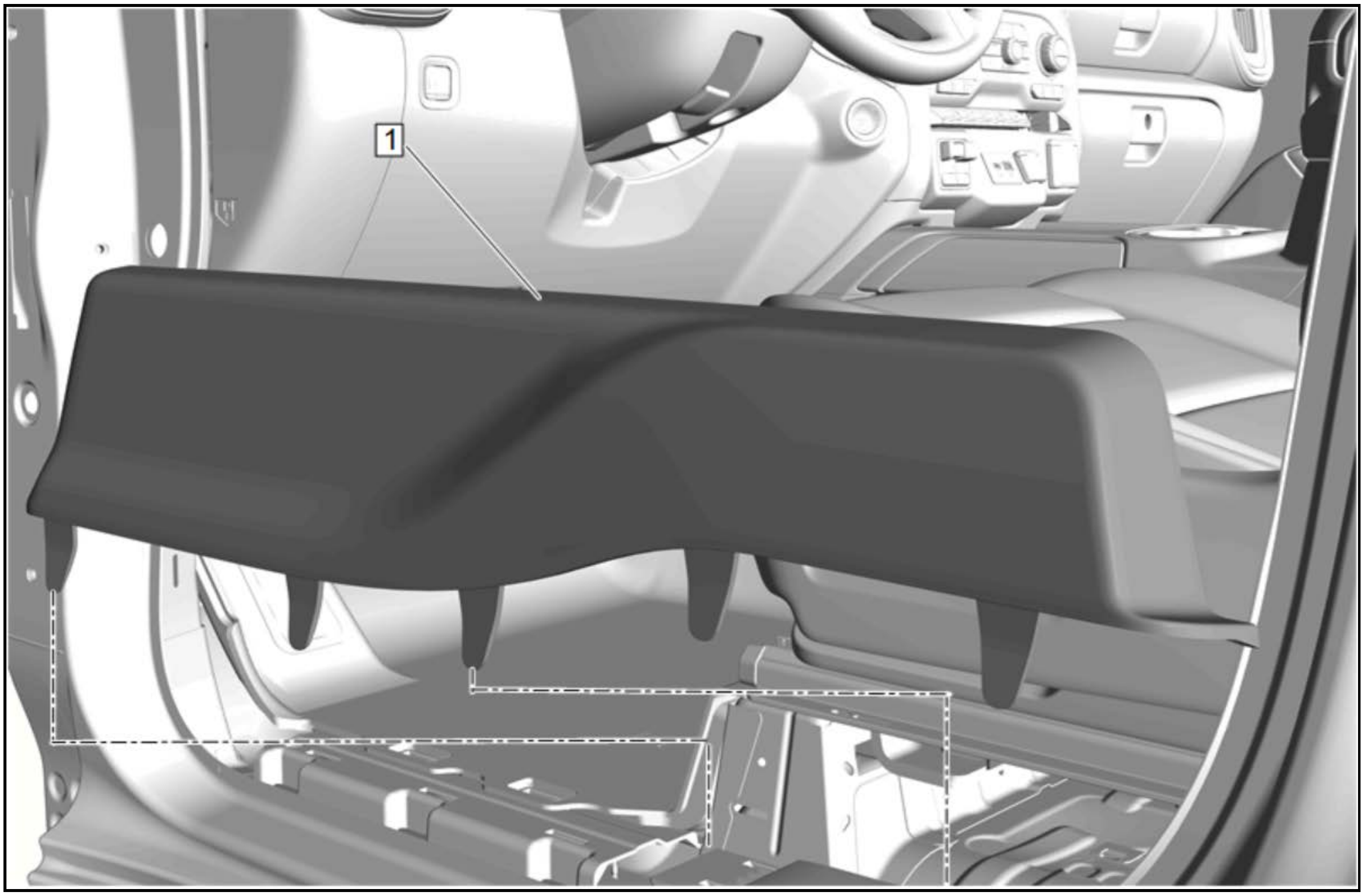
Caution: SIO-ID=2053558 LMD=25-Jan-2008 Use care when working around the head curtain inflator module. Sharp tools may puncture the curtain airbag. If the head curtain inflator module is damaged in any way, it must be replaced.

Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*
2. Fold the center seat armrest to the down position.
3. Recline both front seat backs forward and slide both seats forward.

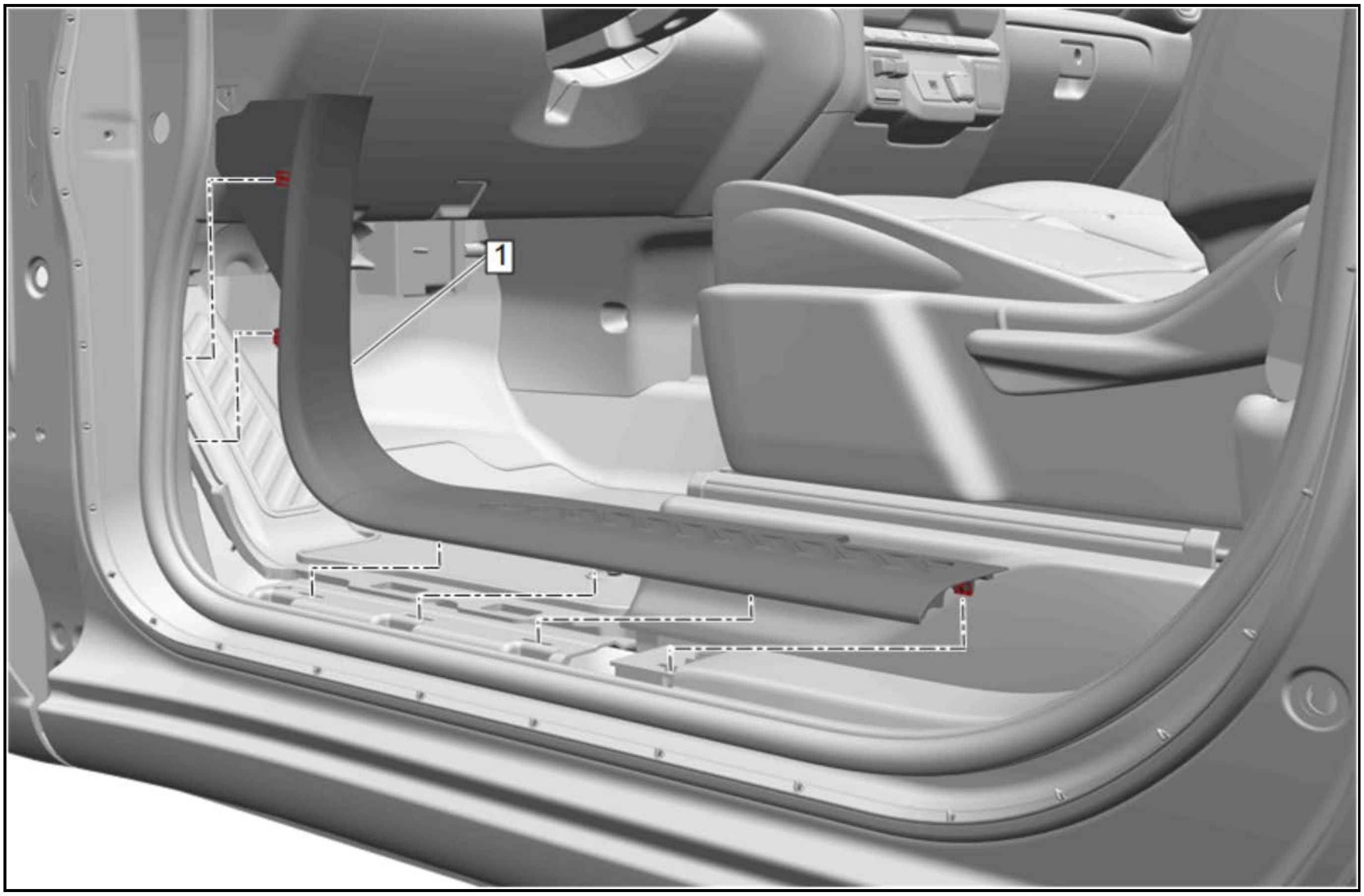


4. Carefully pull the rear window lower garnish molding (1) forward around all edges then the middle of the part to disengage the clips from the sheet metal.
5. After all integral clips are disengaged, lift the rear window lower garnish molding (1) up and forward to clear the 2 rear end panel brackets that the rear window lower garnish molding (1) sits over.



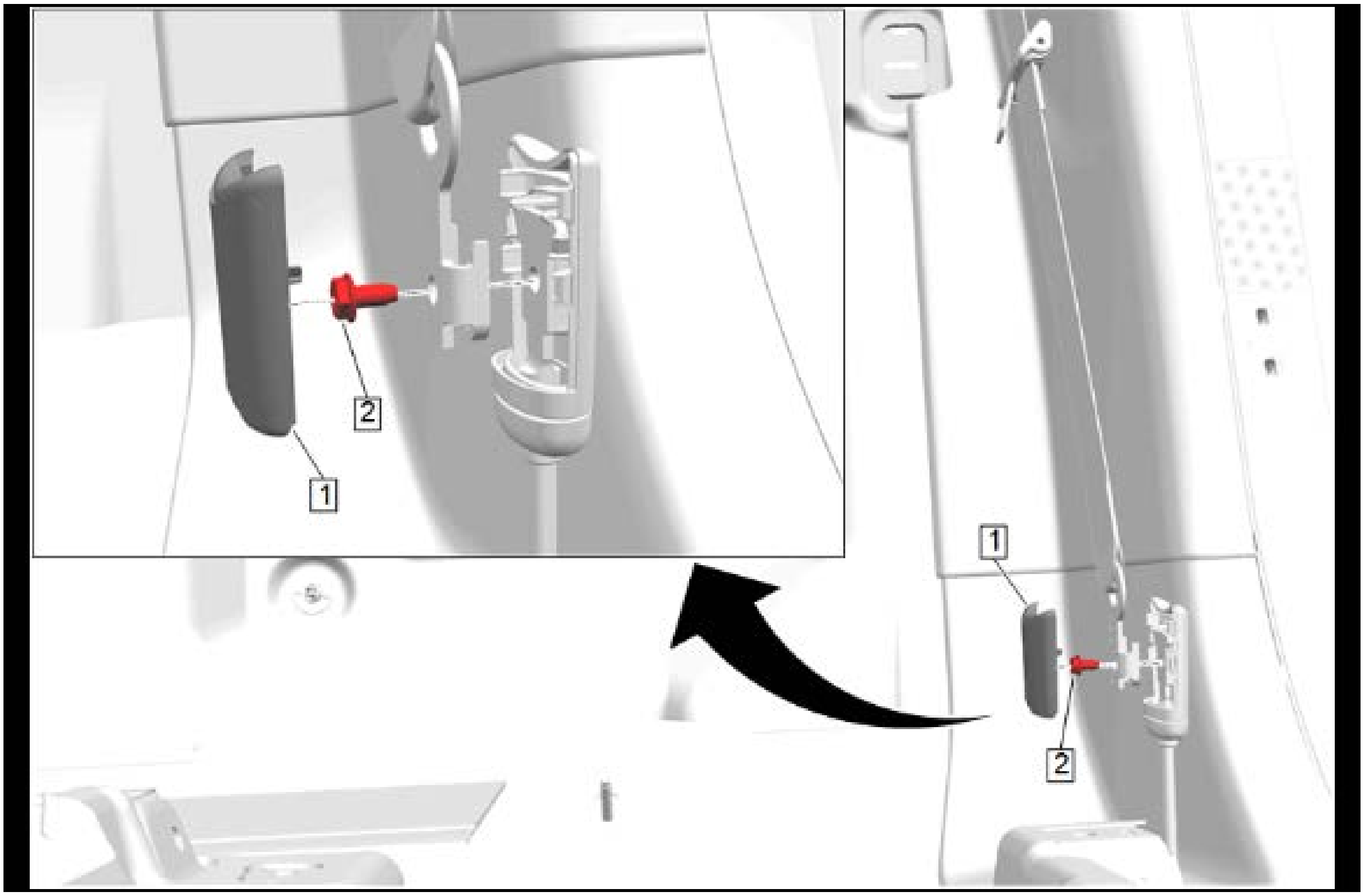
4996050

6. Using a suitable plastic trim tool, gently pry upwards to release the retaining clips.
7. Front Seat Adjuster Track Finish Cover (1) » Remove

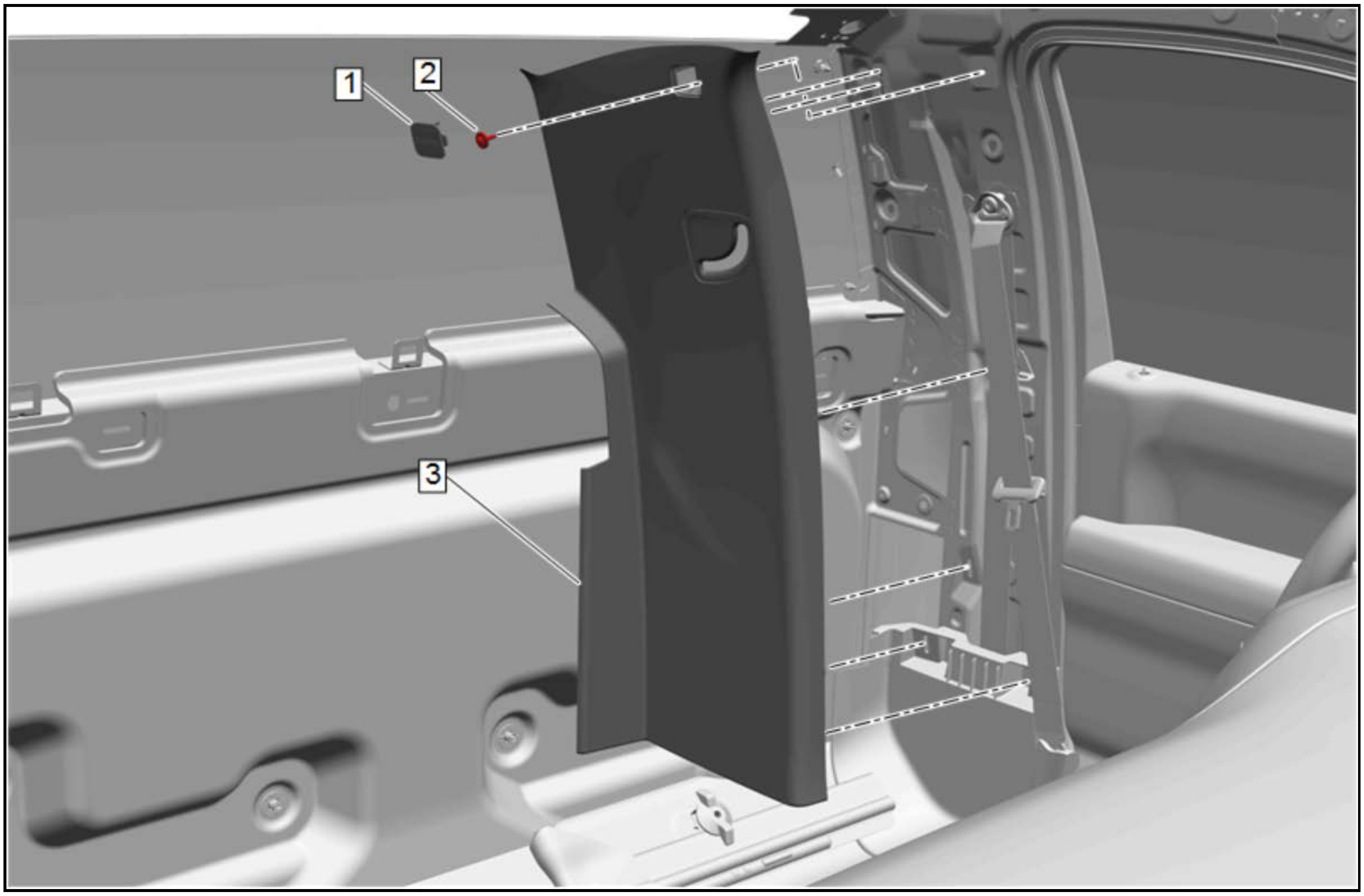


5156921

8. Starting at the rear of the garnish molding (1), pull upward at the B-Pillar joint to release the up/down clips first.
9. Rotate the sill garnish molding (1) inboard after releasing up/down clips and pull rearward to disengage the two clips on the forward vertical wall.
10. Front Side Door Sill Garnish Molding (1) » Remove

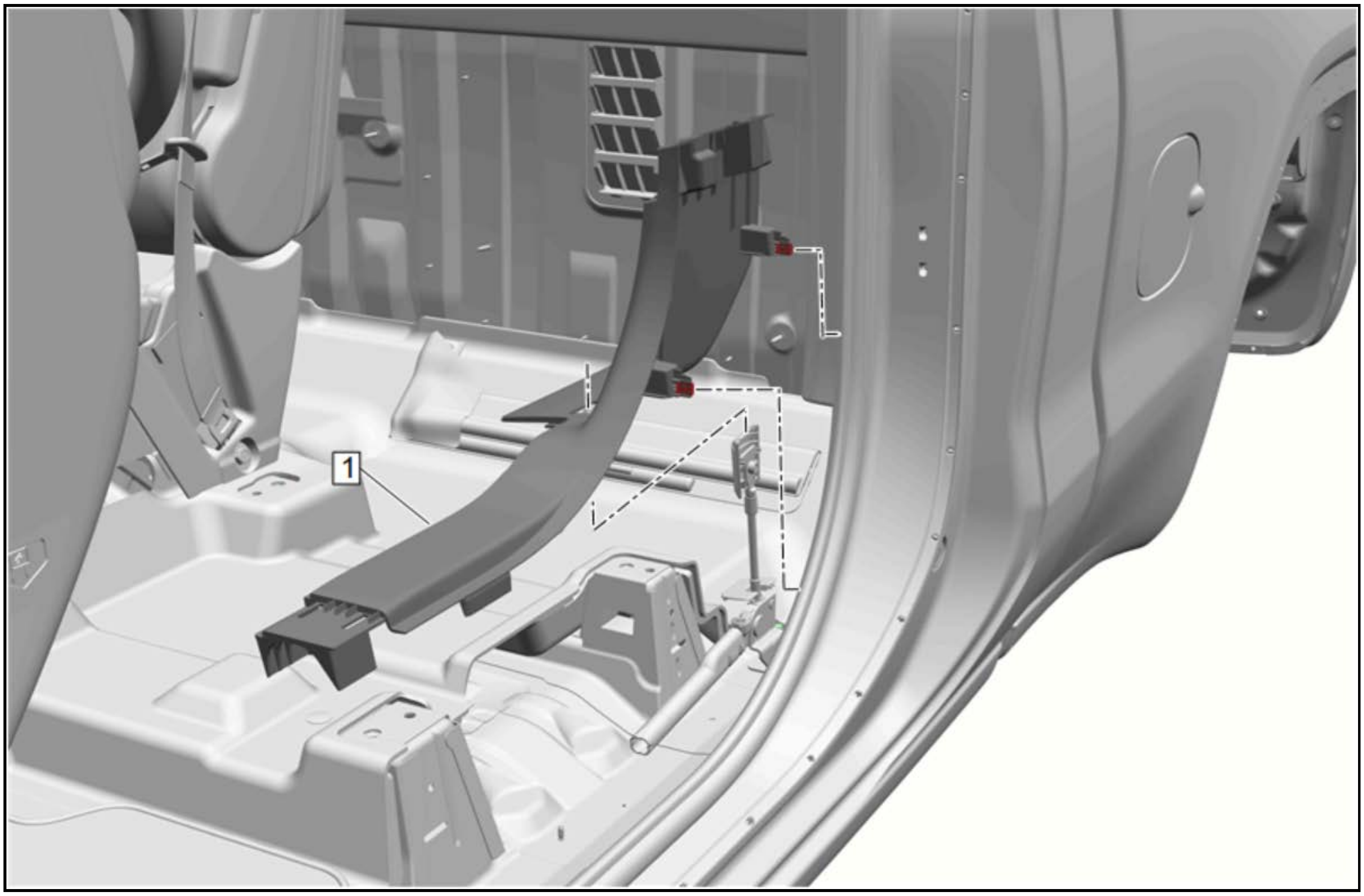


11. Front Seat Belt Anchor Plate Tensioner Cover (1) » Remove
12. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Remove

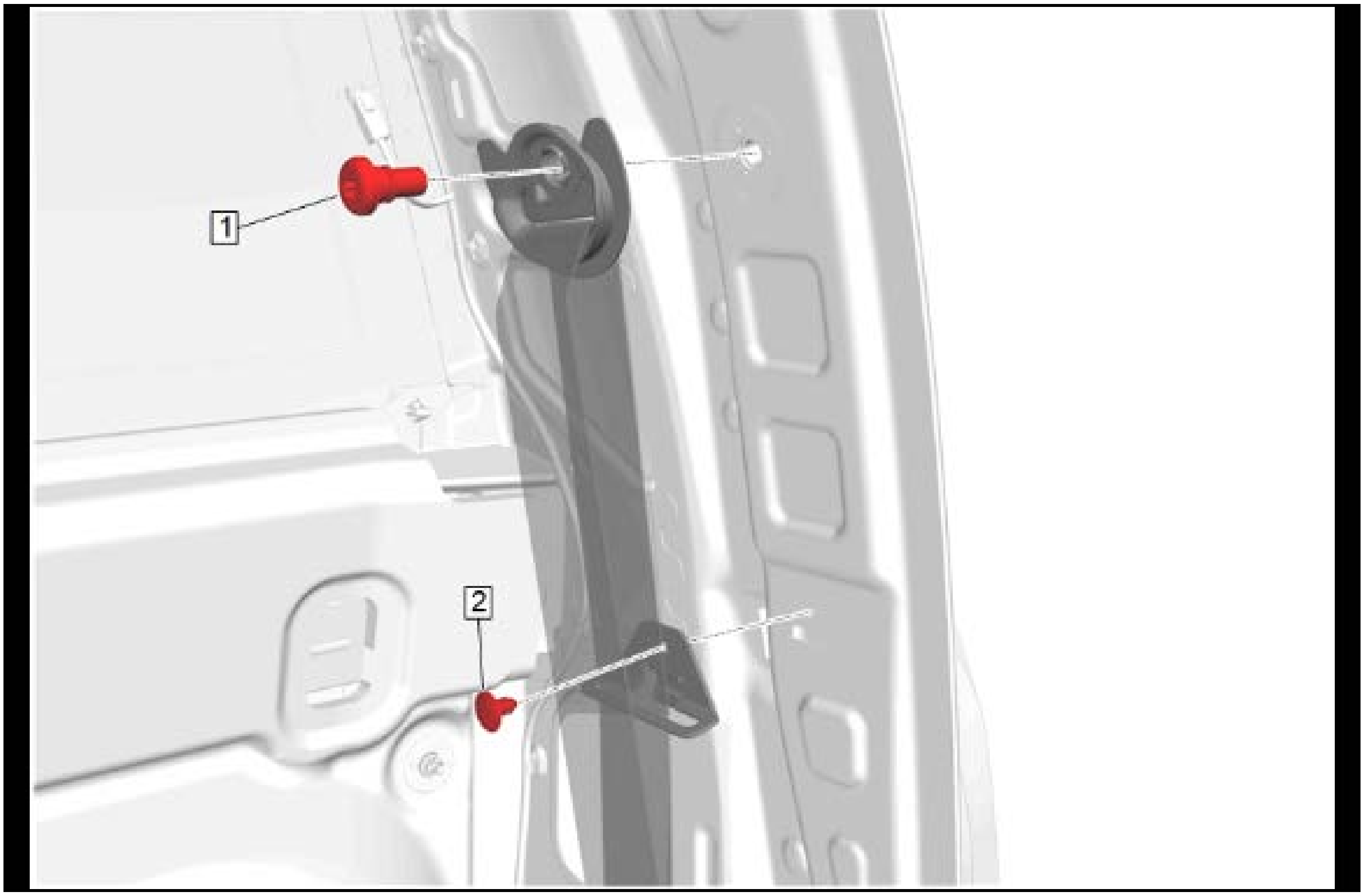


5163264

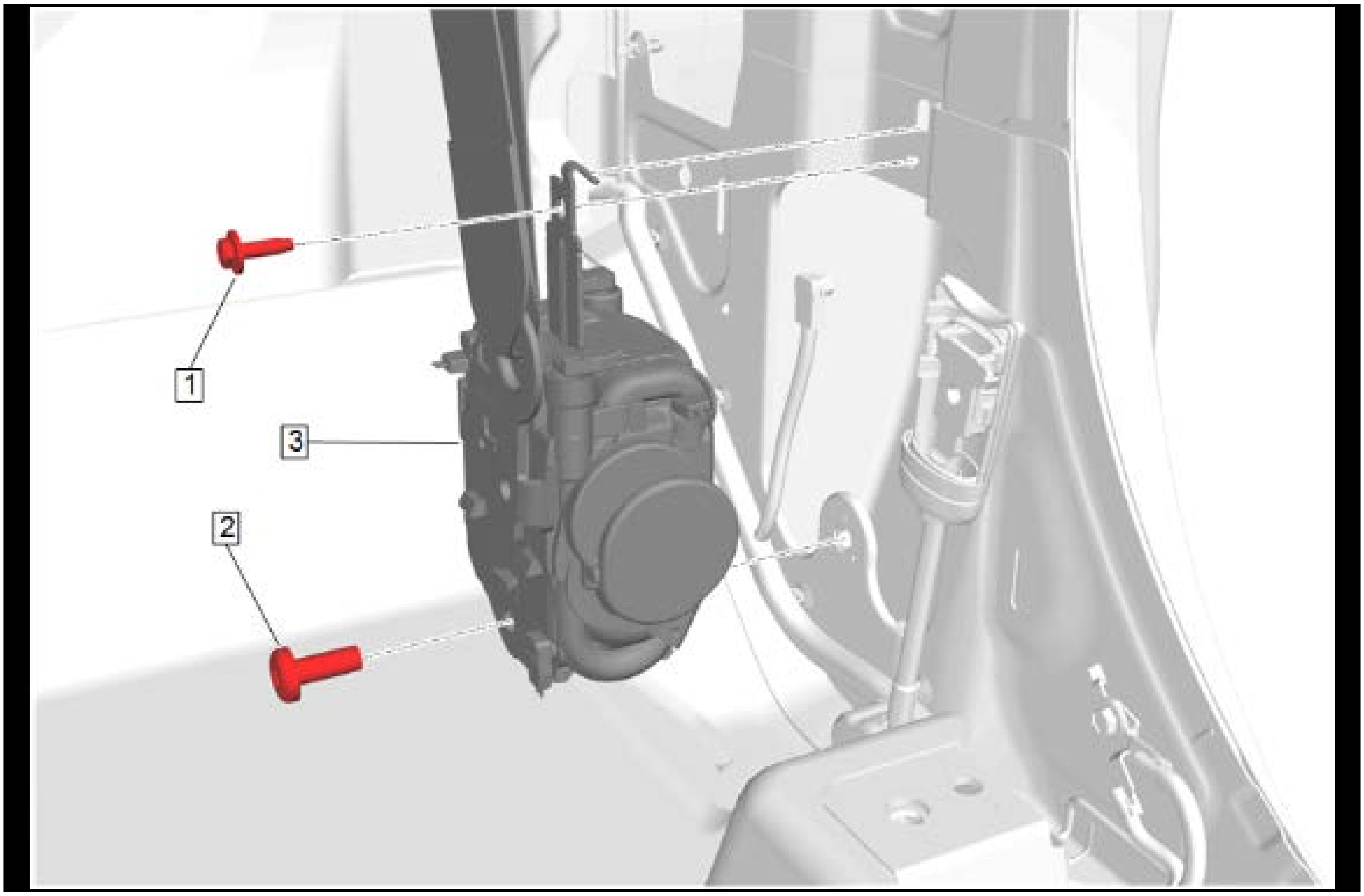
13. Use a small flat bladed tool to open the trim panel bolt cap (1).
14. Body Lock Pillar Garnish Molding Bolt (2) » Remove
15. Starting at the top and working down with a trim tool, grasp the body lock pillar garnish molding (3) and gently pull the part away from the body to release the retainers.
16. Body Lock Pillar Garnish Molding (3) » Remove
17. Route the seat belt webbing through the body lock pillar garnish molding (3).



18. Quarter Trim Panel Cover » Remove
19. Using a flat-bladed plastic trim tool, release the retaining clips.
20. Rear Side Door Sill Garnish Molding (1) » Remove



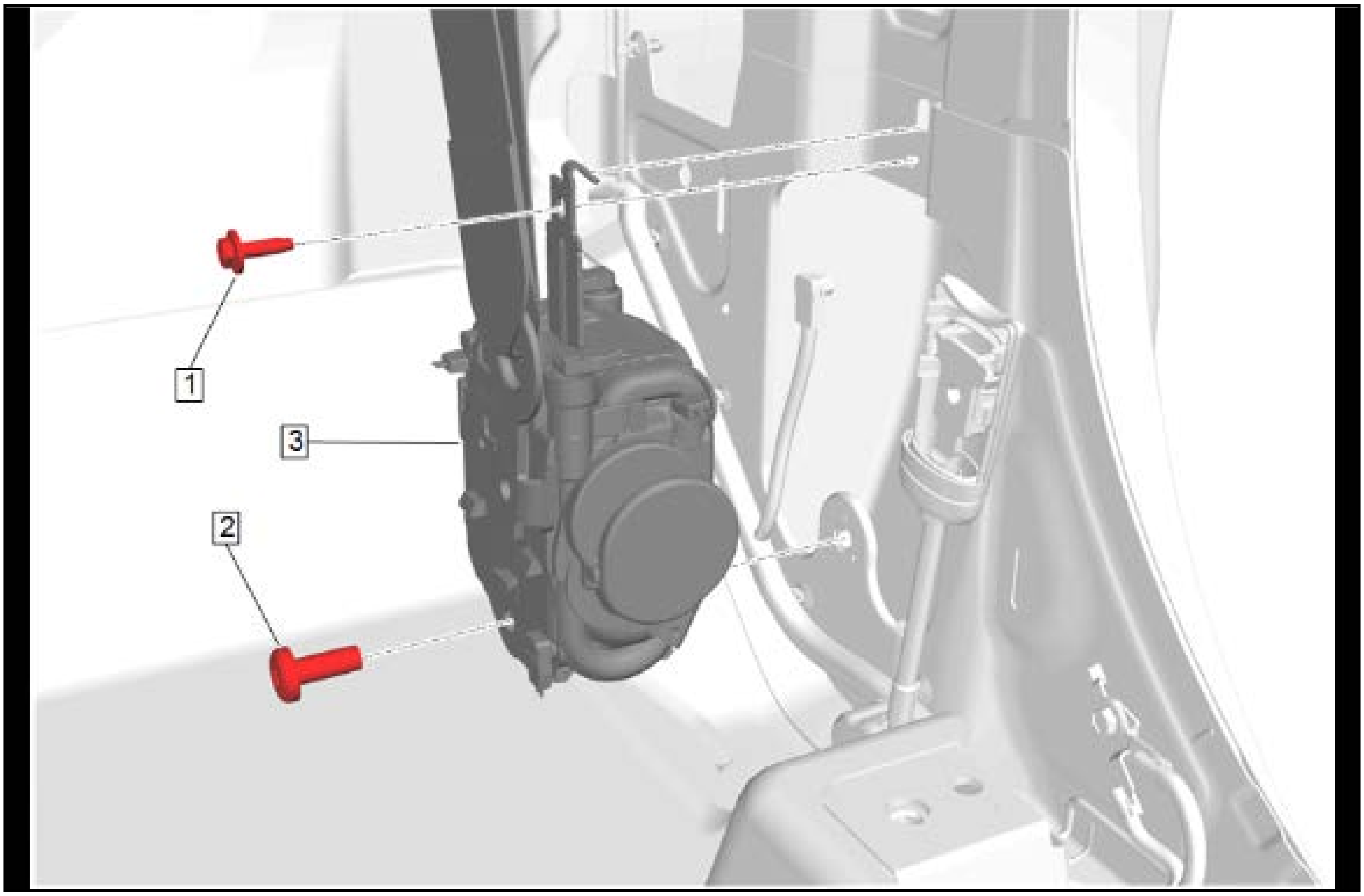
21. Front Seat Belt Retractor D Ring Bolt (1) » Remove
22. Front Seat Belt Retractor Guide Retainer (2) » Remove



5969481

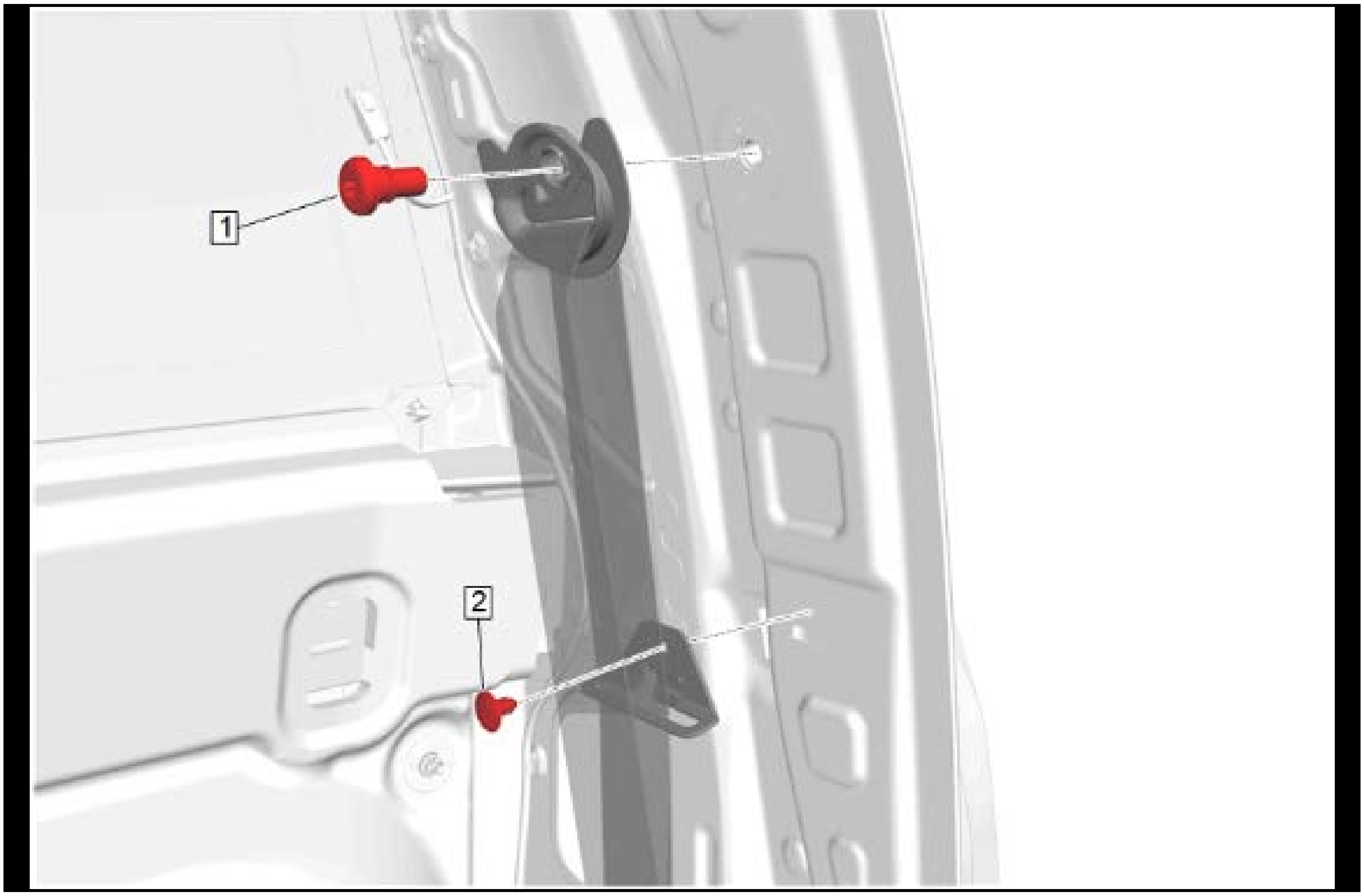
23. Disconnect the electrical connector.
24. Front Seat Belt Retractor Bolt - Upper (1) » Remove
25. Front Seat Belt Retractor Bolt - Lower (2) » Remove
26. Front Seat Belt Retractor (3) » Remove
27. *Pretensioner Handling and Scrapping on page 8-672*

Installation Procedure



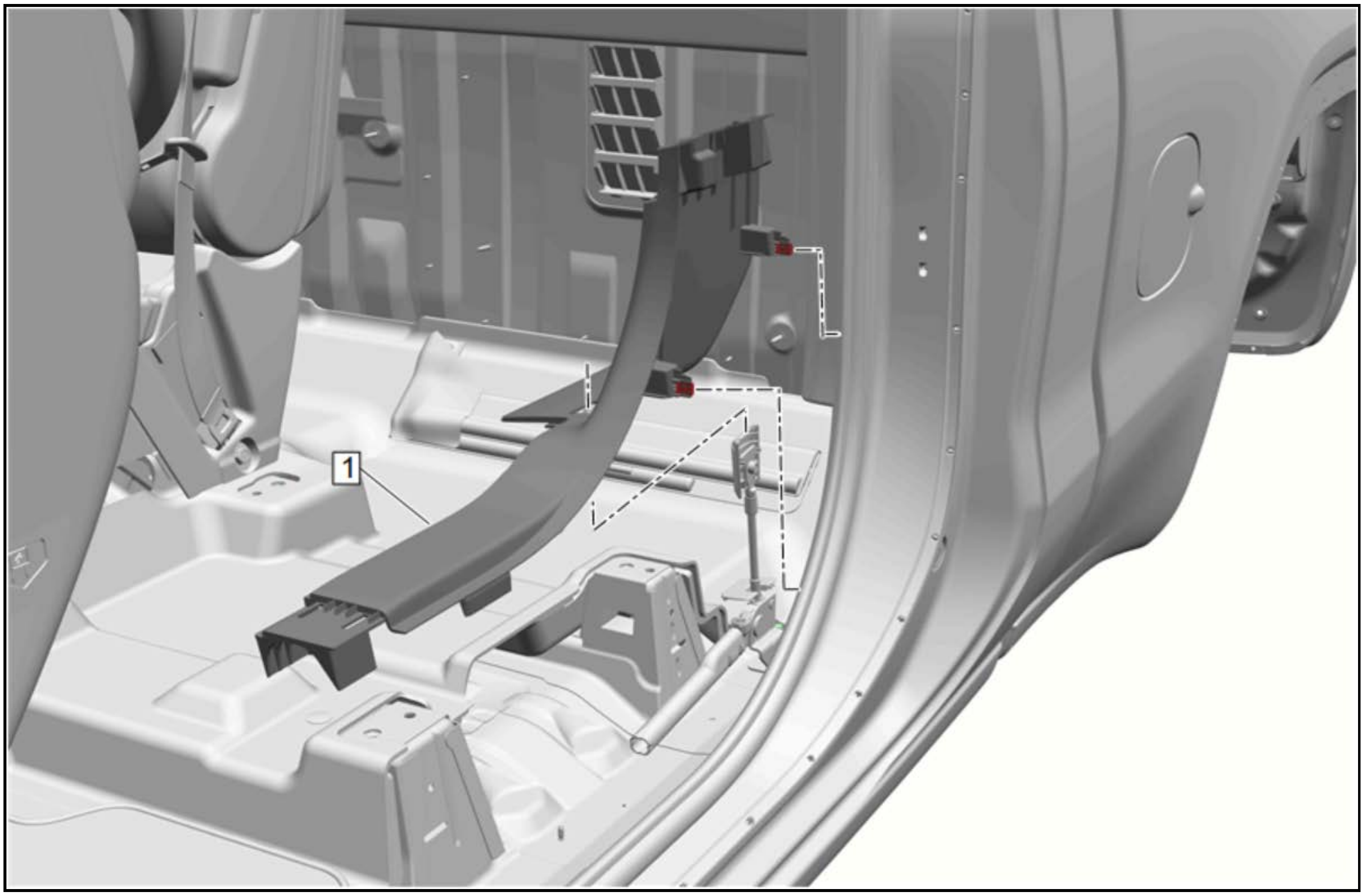
5969481

1. Front Seat Belt Retractor (3) » Install
2. Front Seat Belt Retractor Bolt - Lower (2) » Install and tighten — *Fastener Specifications on page 8-427*
3. Front Seat Belt Retractor Bolt - Upper (1) » Install and tighten — *Fastener Specifications on page 8-427*
4. Connect the electrical connector.



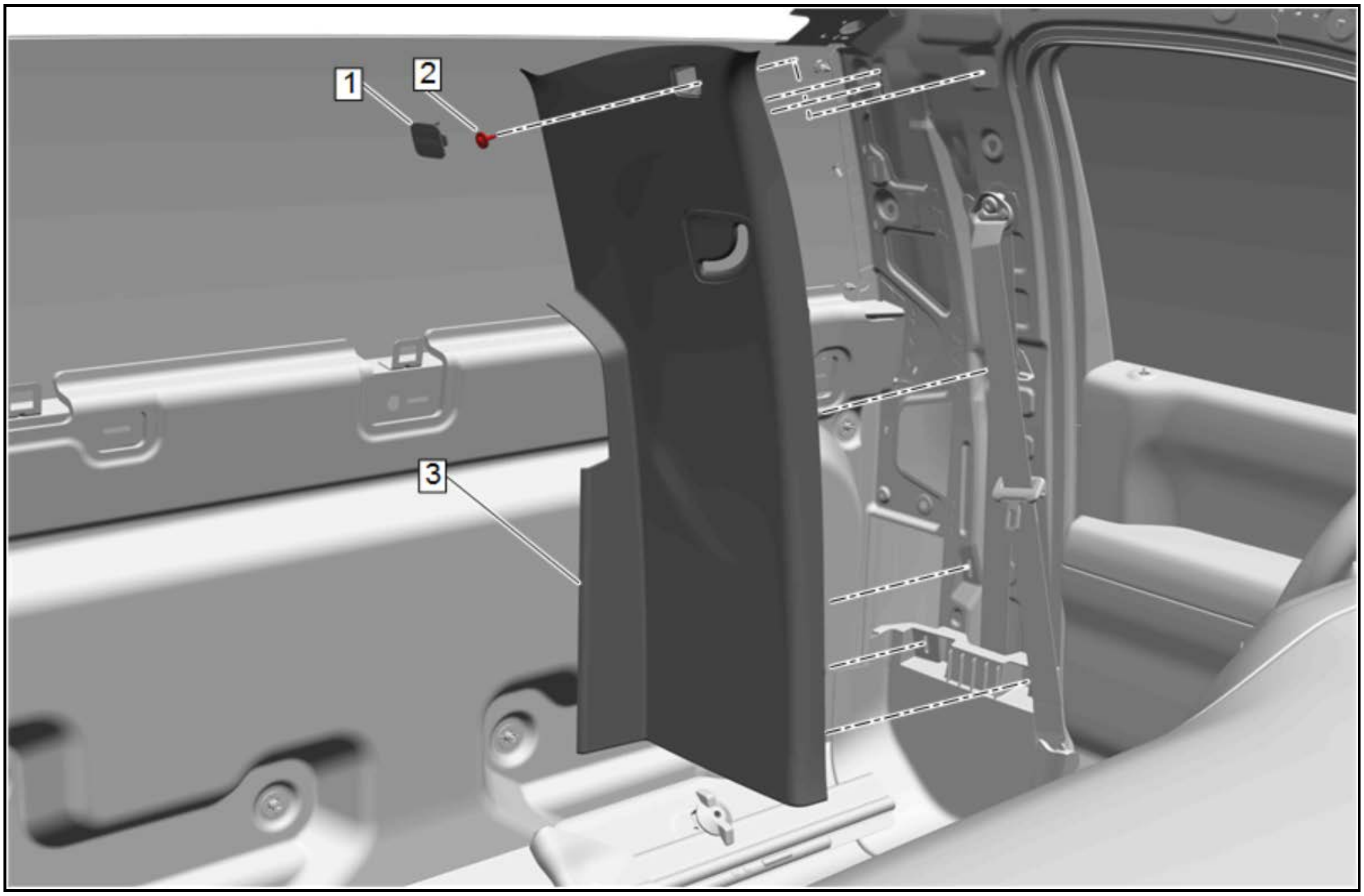
5969478

5. Front Seat Belt Retractor Guide Retainer (2) » Install
6. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    - 6.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    - 6.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    - 6.3. Apply thread locking adhesive to the external threads of the component. *Adhesives, Fluids, Lubricants, and Sealers on page 8-432*
    - 6.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
7. Front Seat Belt Retractor D Ring Bolt (1) » Install and tighten — *Fastener Specifications on page 8-427*

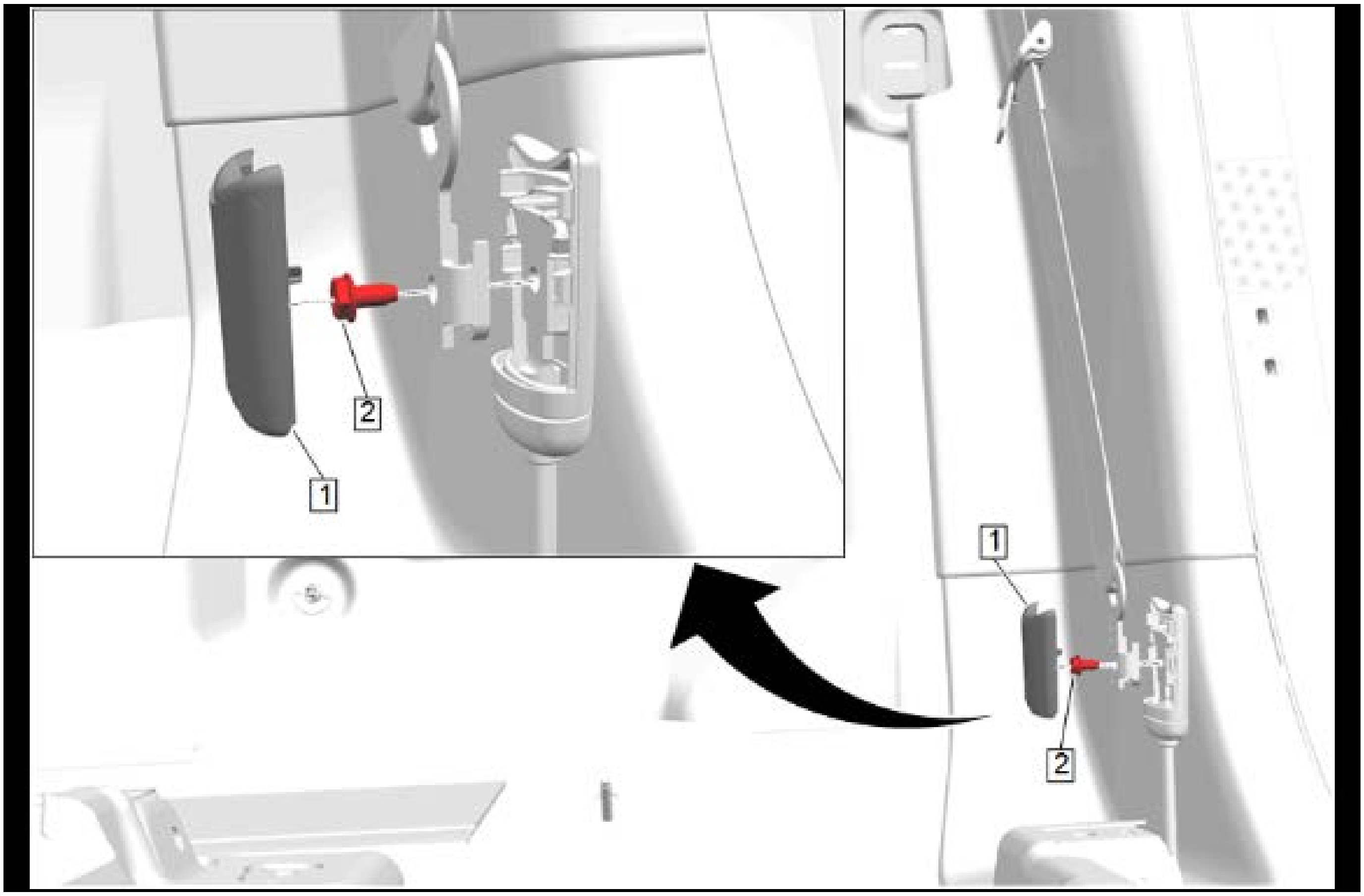


5158622

8. Rear Side Door Sill Garnish Molding (1) » Install
9. Quarter Trim Panel Cover » Install

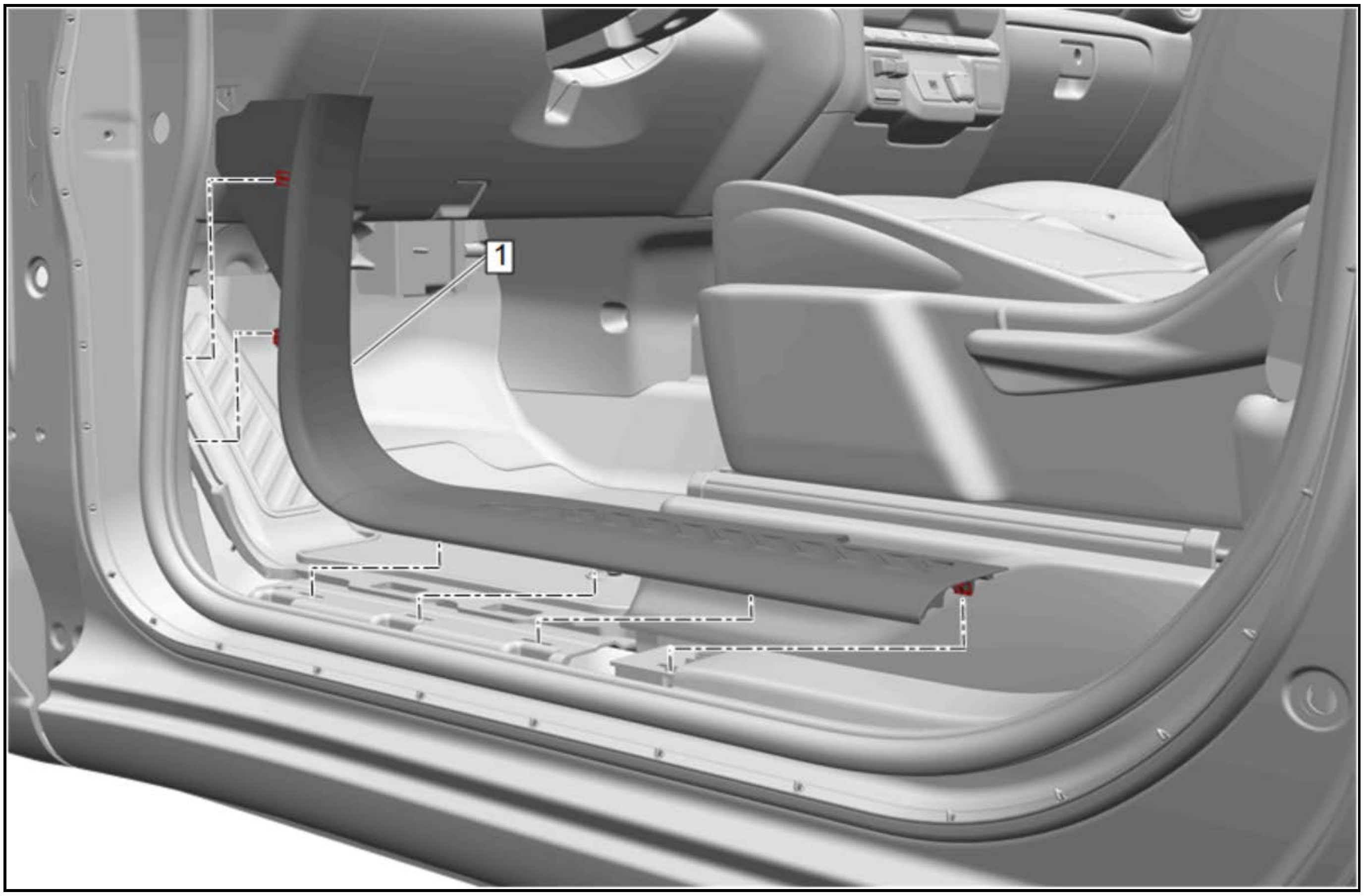


10. Ensure the seat belt webbing is fed through the seat belt opening of the body lock pillar garnish molding (3).
11. Body Lock Pillar Garnish Molding (3) » Install
12. Body Lock Pillar Garnish Molding Bolt (2) » Install and tighten
13. Center Pillar Upper Trim Panel Bolt Cap (1) » Install



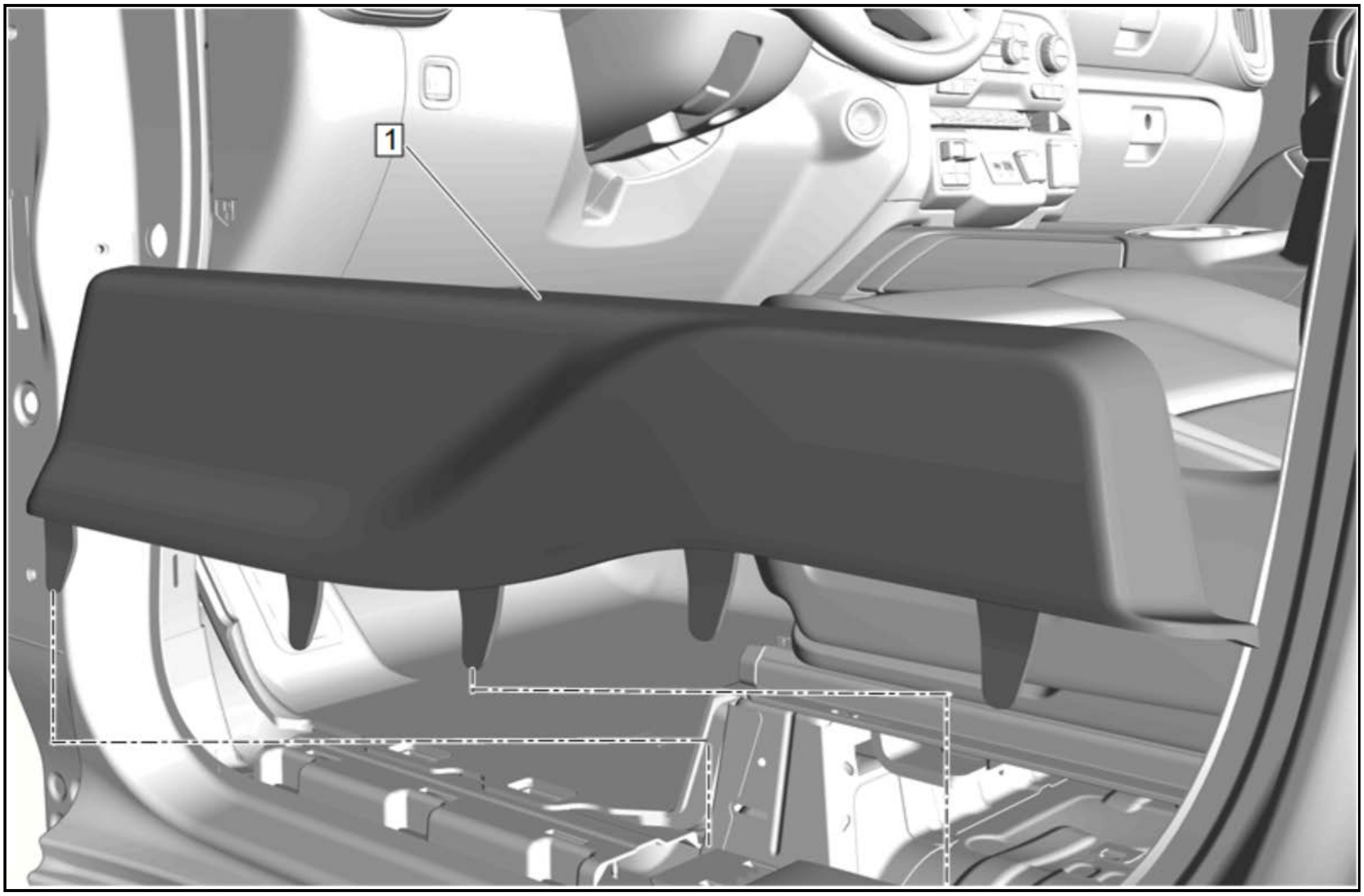
5969473

14. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    14.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    14.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    14.3. Apply thread locking adhesive to the external threads of the component. *Adhesives, Fluids, Lubricants, and Sealers on page 8-432*
    14.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
15. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Install and tighten — *Fastener Specifications on page 8-427*
16. Front Seat Belt Anchor Plate Tensioner Cover (1) » Install

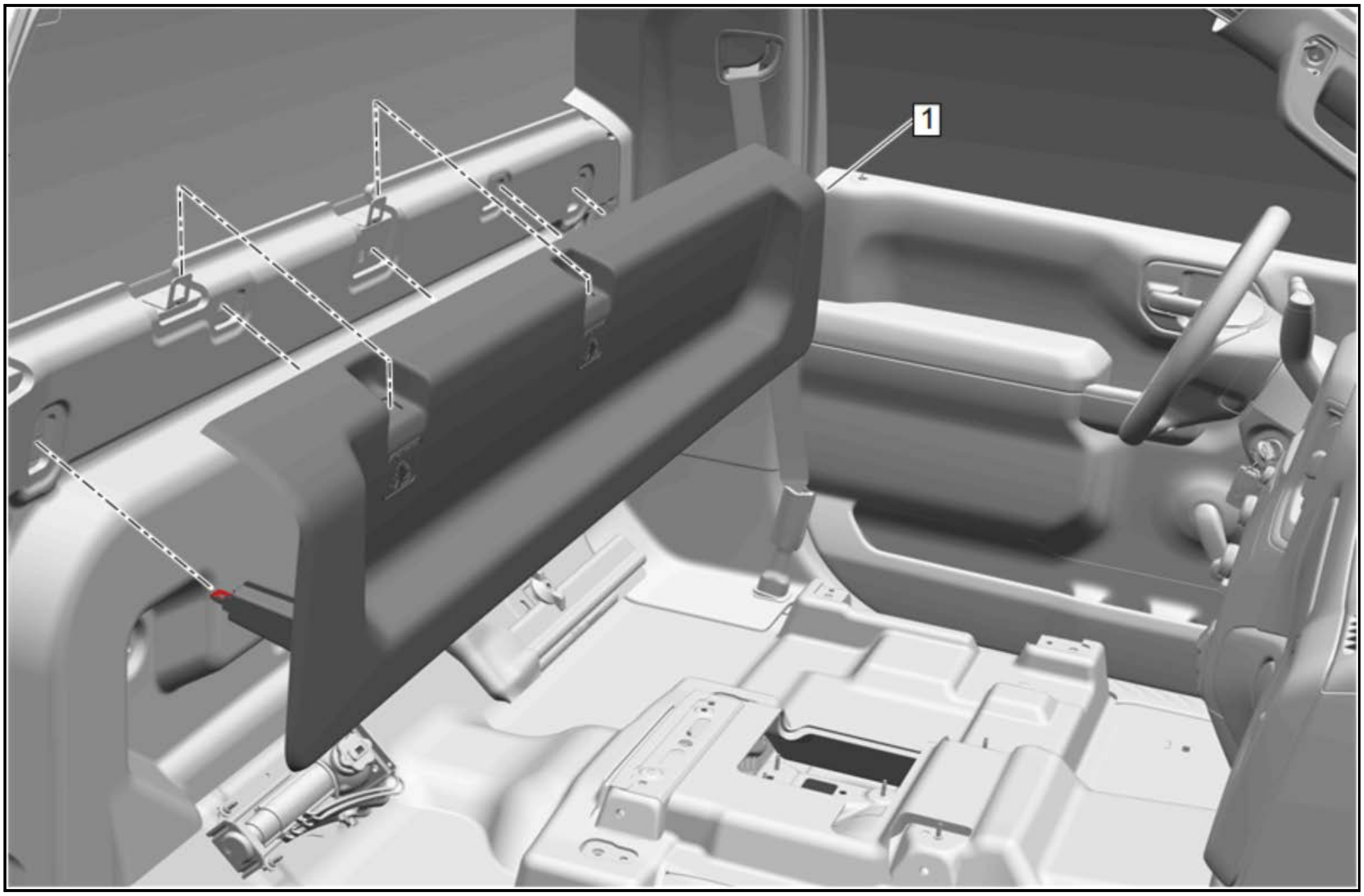


5156921

17. Starting at the front of the front side door sill garnish molding (1), engage the 2 retaining clips on the forward vertical wall.
18. Work your way rearward engaging the front side door sill garnish molding retaining clips.
19. Front Side Door Sill Garnish Molding (1) » Install



20. Front Seat Adjuster Track Finish Cover (1) » Install



21. Rear Window Lower Garnish Molding (1) » Install
22. Return the seat to its original position.
23. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

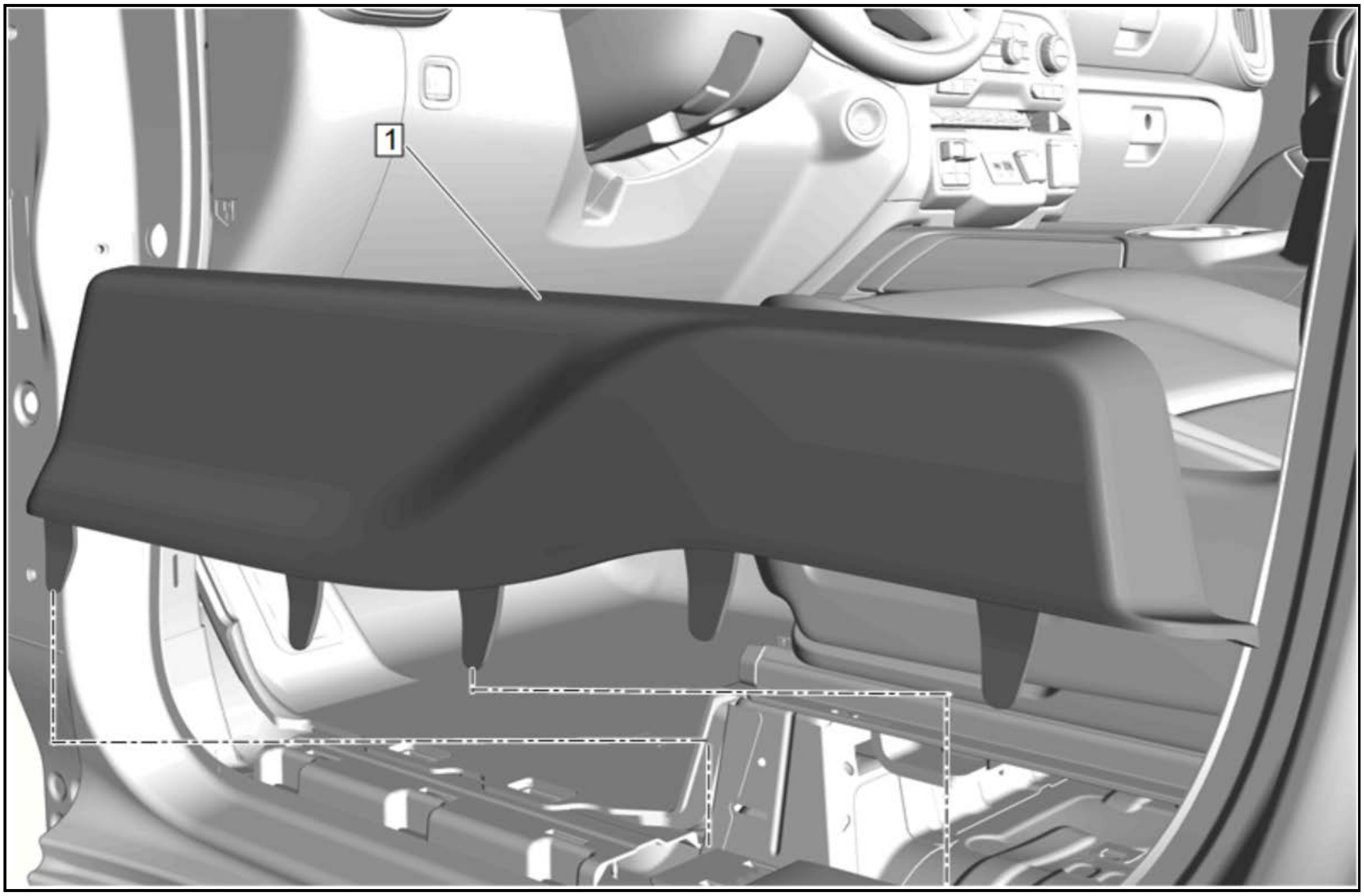
Front Seat Belt Retractor Replacement (Double Cab, Crew Cab)

Object-ID=5906823 Owner=Cameli, Jordan LMD=07-Oct-2021 LMB=Schaller, Dawn

Caution: SIO-ID=2053558 LMD=25-Jan-2008 Use care when working around the head curtain inflator module. Sharp tools may puncture the curtain airbag. If the head curtain inflator module is damaged in any way, it must be replaced.

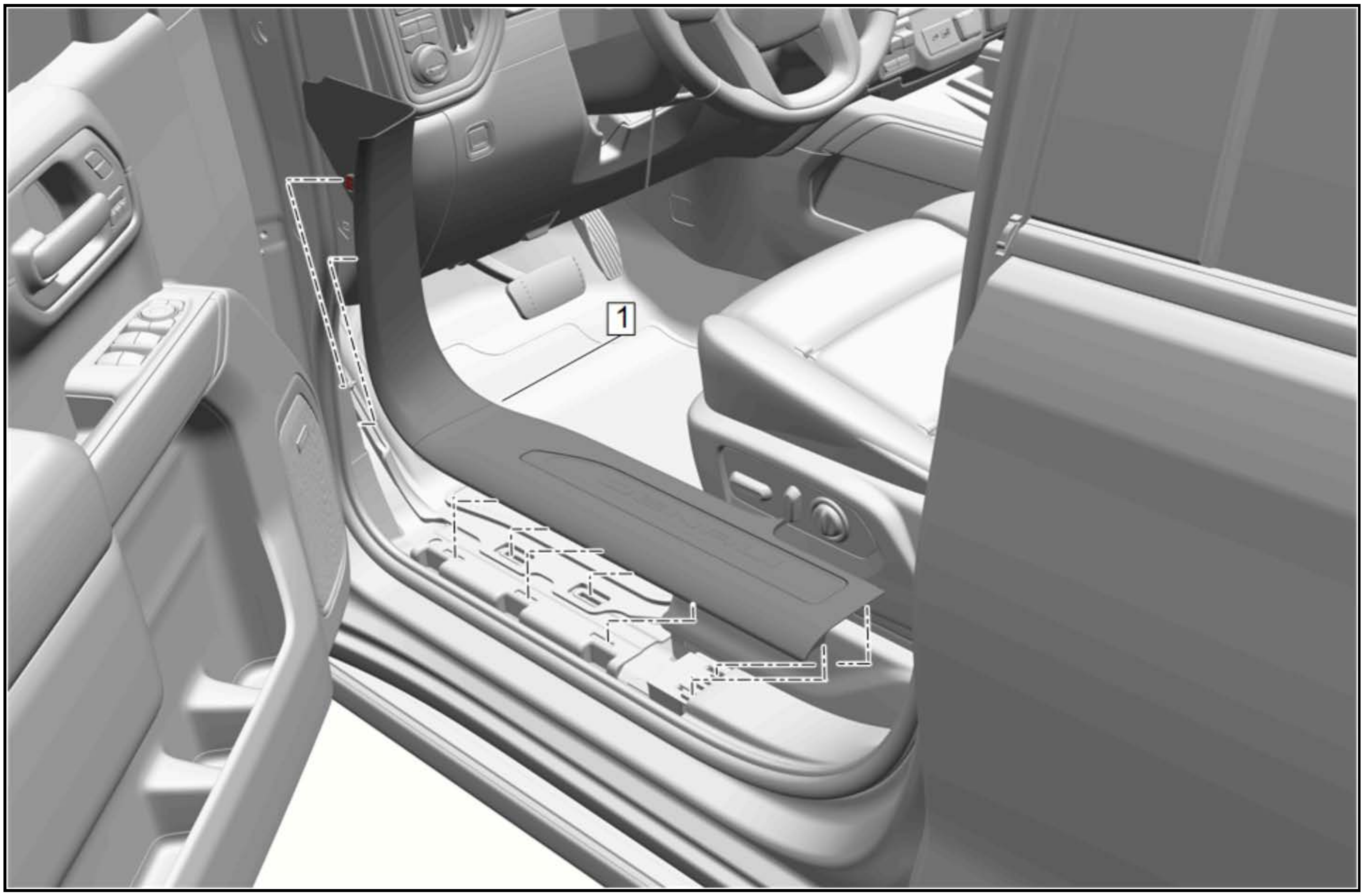
Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*

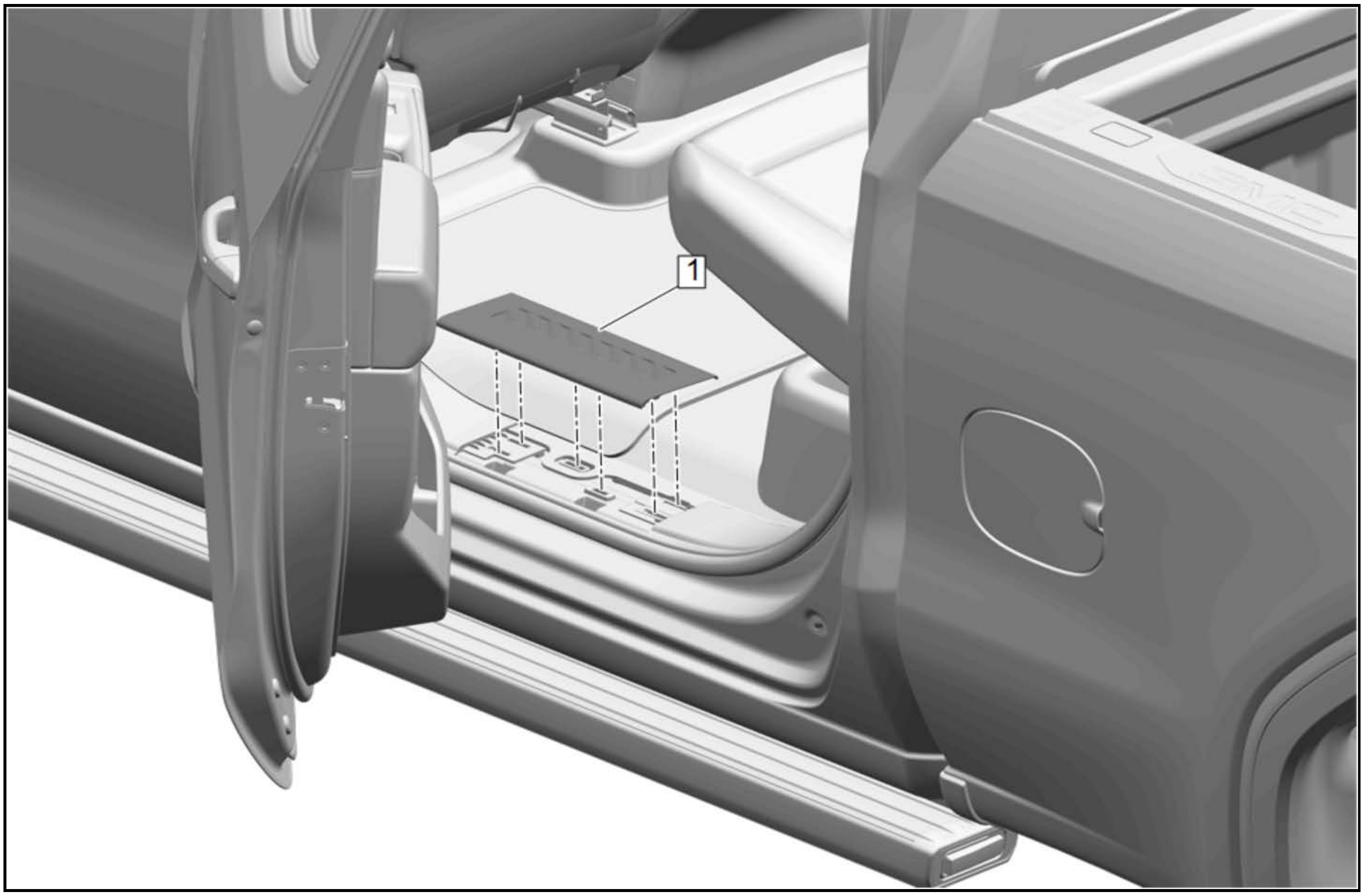


4996050

2. Using a suitable plastic trim tool, gently pry upwards to release the retaining clips.
3. Front Seat Adjuster Track Finish Cover (1) » Remove

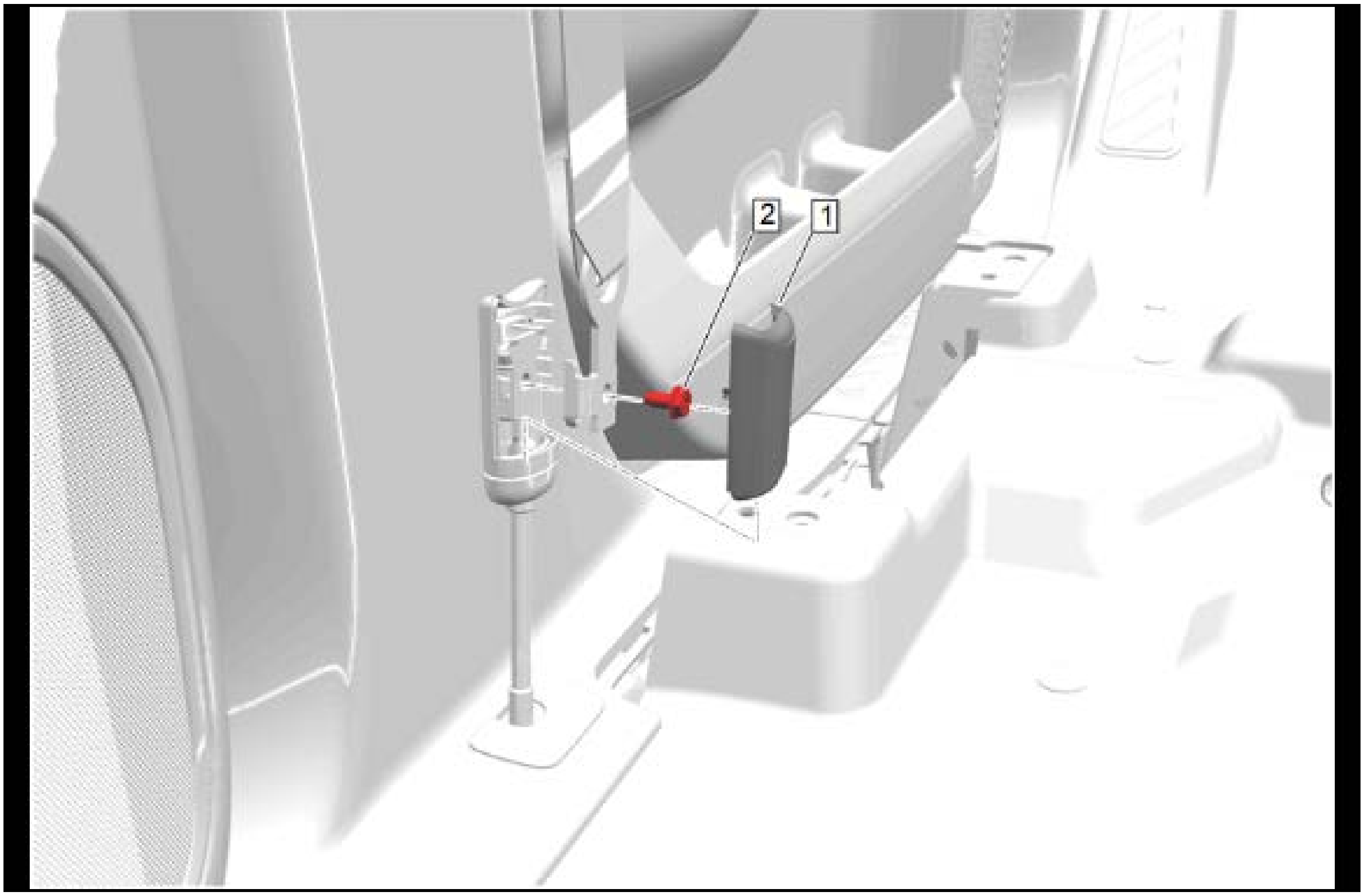


4. Starting at the rear of the front side door sill garnish molding (1) , pull upward at the B-Pillar joint to release the up/down clips first.
5. Rotate the front side door sill garnish molding (1) inboard after releasing up/down clips and pull rearward to disengage the two clips on the forward vertical wall.
6. Front Side Door Sill Garnish Molding (1) » Remove



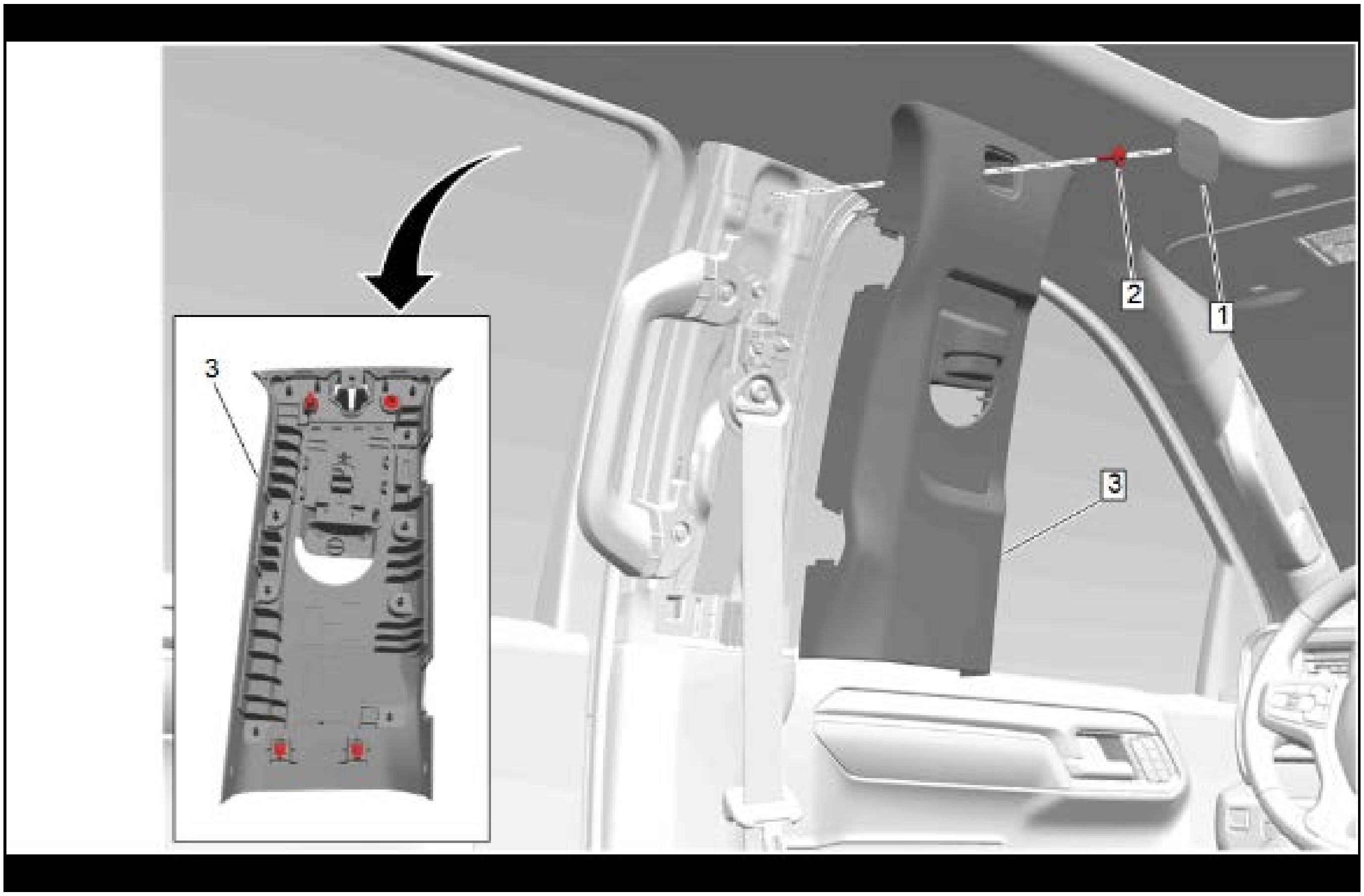
5001935

7. Use a flat bladed plastic tool to disengage retaining clips between the rear side door sill garnish molding (1) and the center pillar lower trim panel.
8. Pull upward from both sides of the rear side door sill garnish molding (1) to disengage retaining clips front to rear.
9. Rear Side Door Sill Garnish Molding (1) » Remove



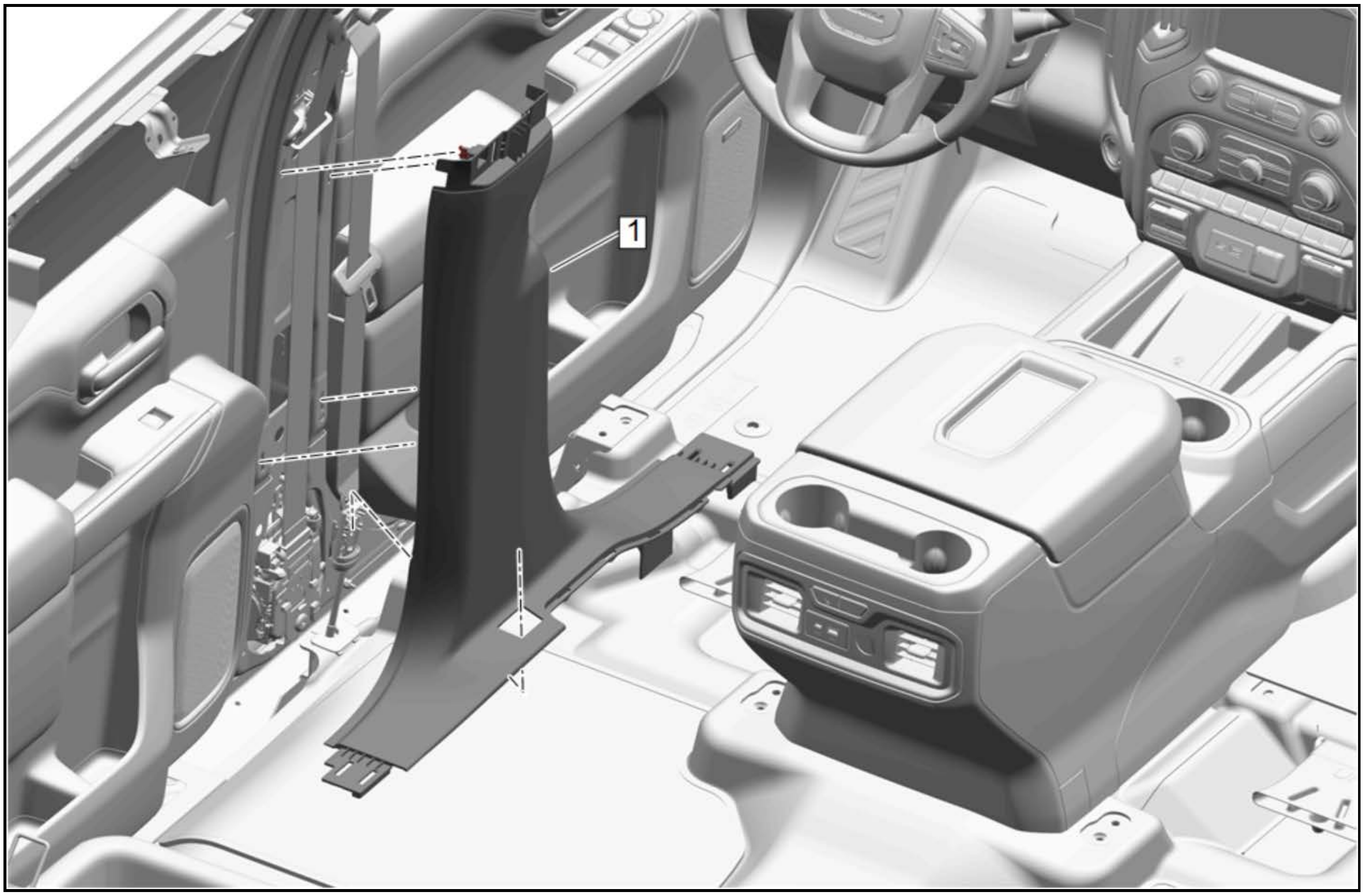
5904712

10. Front Seat Belt Anchor Plate Tensioner Cover (1) » Remove
11. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Remove



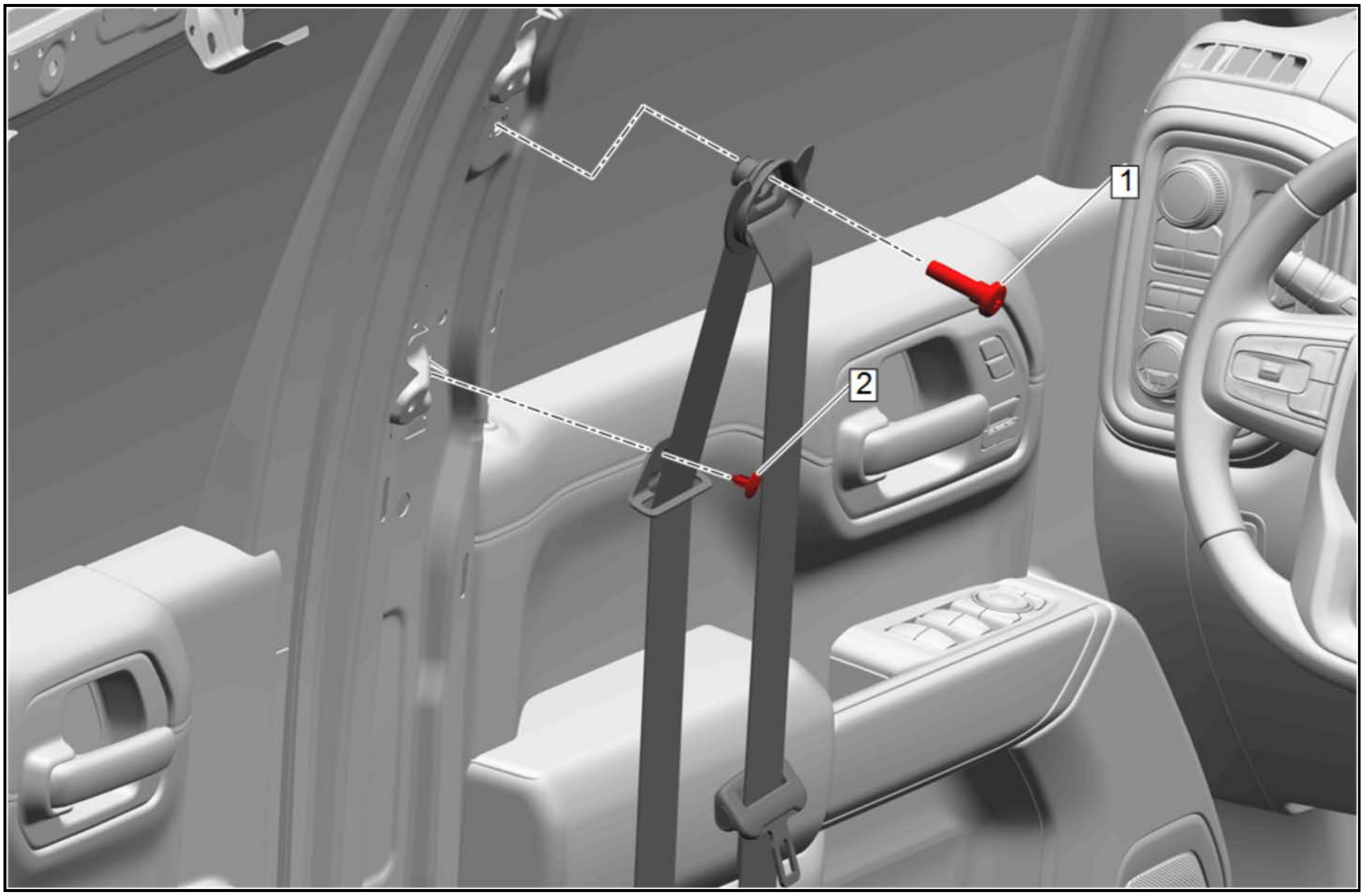
5904659

12. Use a small flat - bladed tool to open the bolt cap (1) and gain access to the bolt.
13. Center Pillar Upper Trim Panel Bolt Cap (1) » Remove
14. Center Pillar Upper Garnish Molding Bolt (2) » Remove
15. Pull the Center Pillar Upper Trim Panel (3) toward the inside of the vehicle to disengage the clips and retainer.
16. Feed the seat belt through the Center Pillar Upper Trim Panel (3) .
17. Center Pillar Upper Trim Panel (3) » Remove



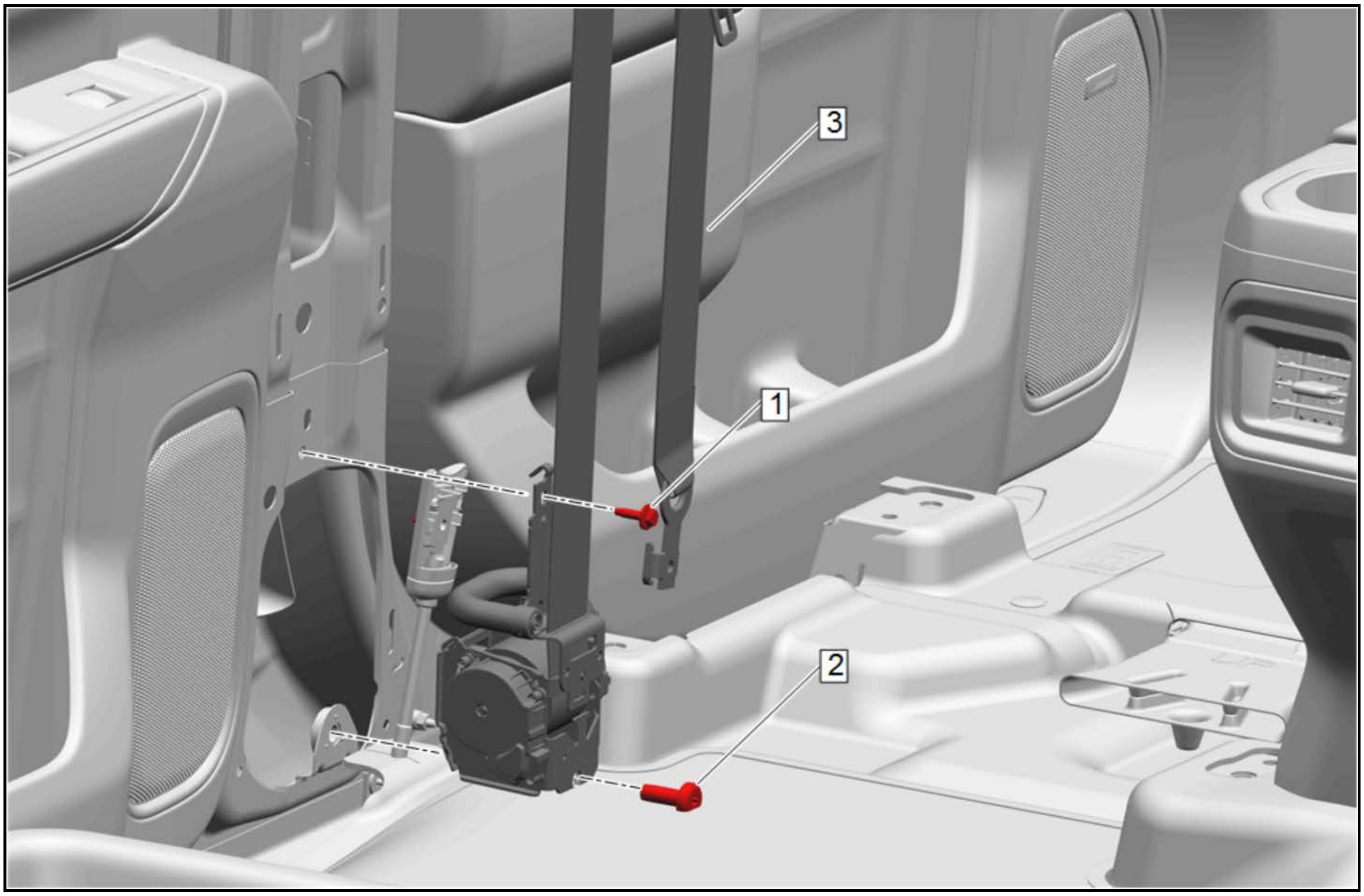
5001632

18. Remove the center pillar lower trim panel cover.
19. Pull the center pillar lower trim panel (1) inward and upward to disengage the retainers and to clear the front seat belt anchor plate tensioner.
20. Center Pillar Lower Trim Panel (1) » Remove



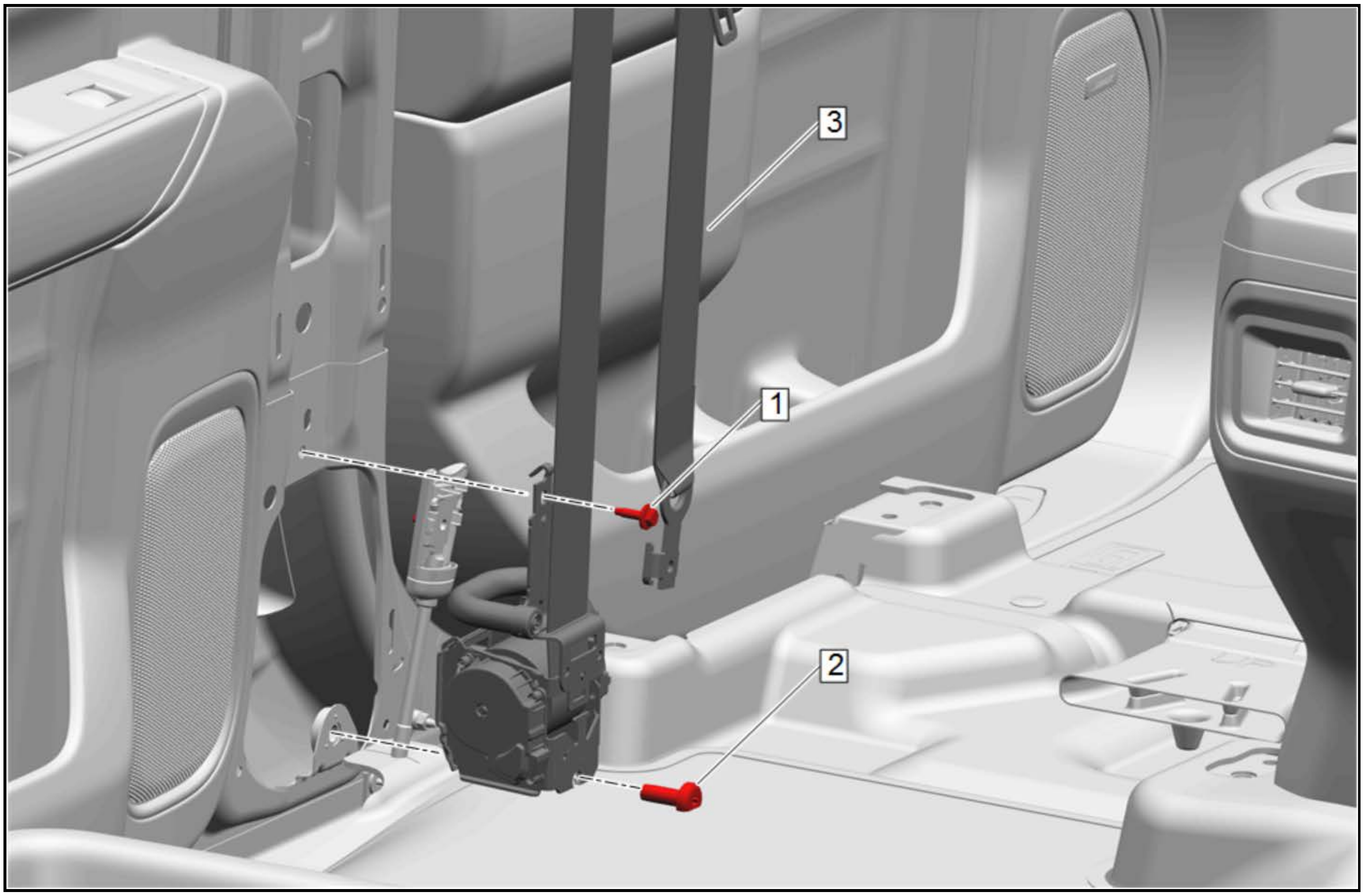
5039692

21. Front Seat Belt Retractor D Ring Bolt (1) » Remove
22. Front Seat Belt Retractor Guide Retainer (2) » Remove



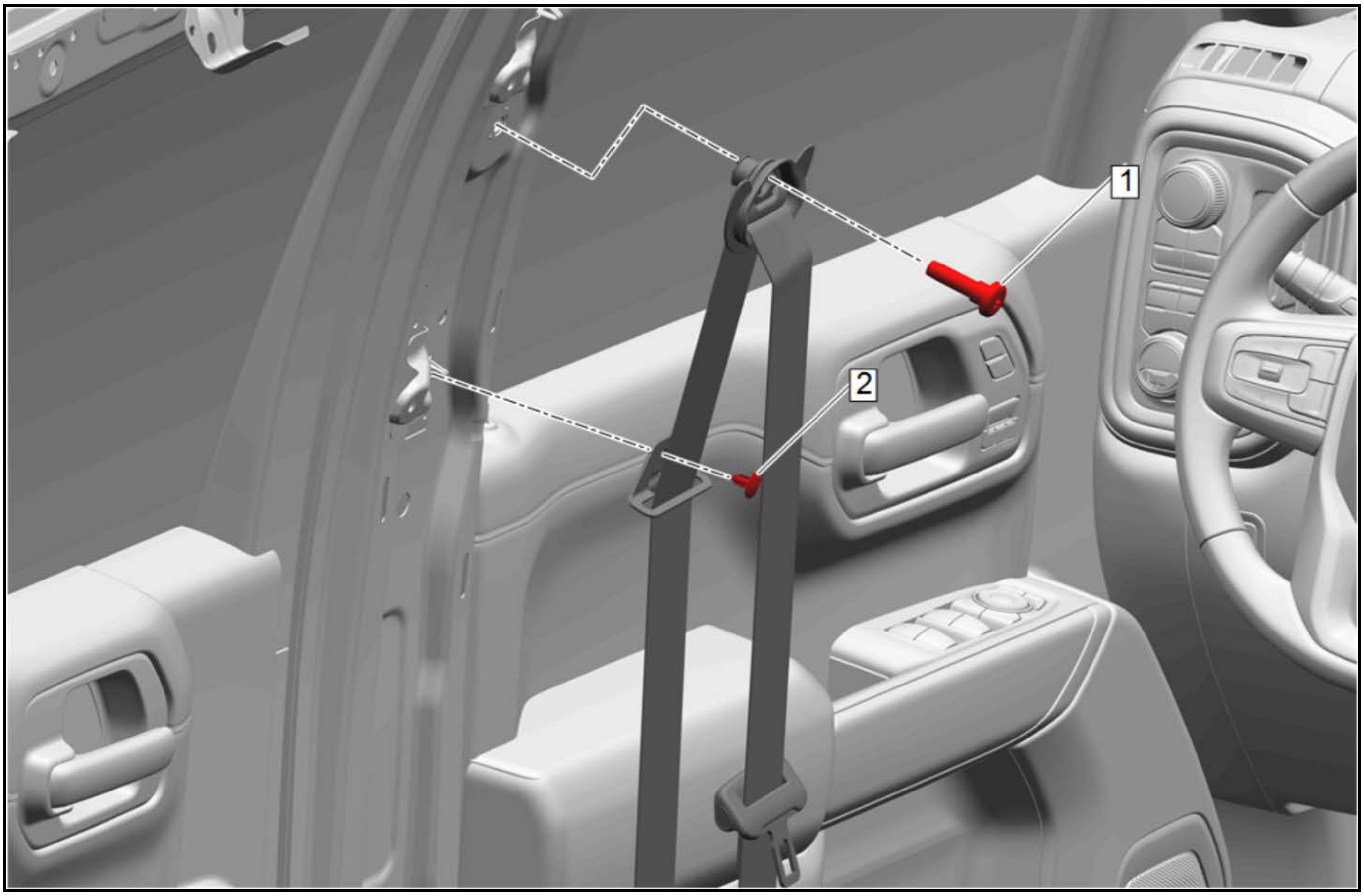
23. Disconnect the electrical connector.
24. Front Seat Belt Retractor Bolt - Upper (1) » Remove
25. Front Seat Belt Retractor Bolt - Lower (2) » Remove
26. Front Seat Belt Retractor (3) » Remove
27. *Pretensioner Handling and Scrapping on page 8-672*

Installation Procedure

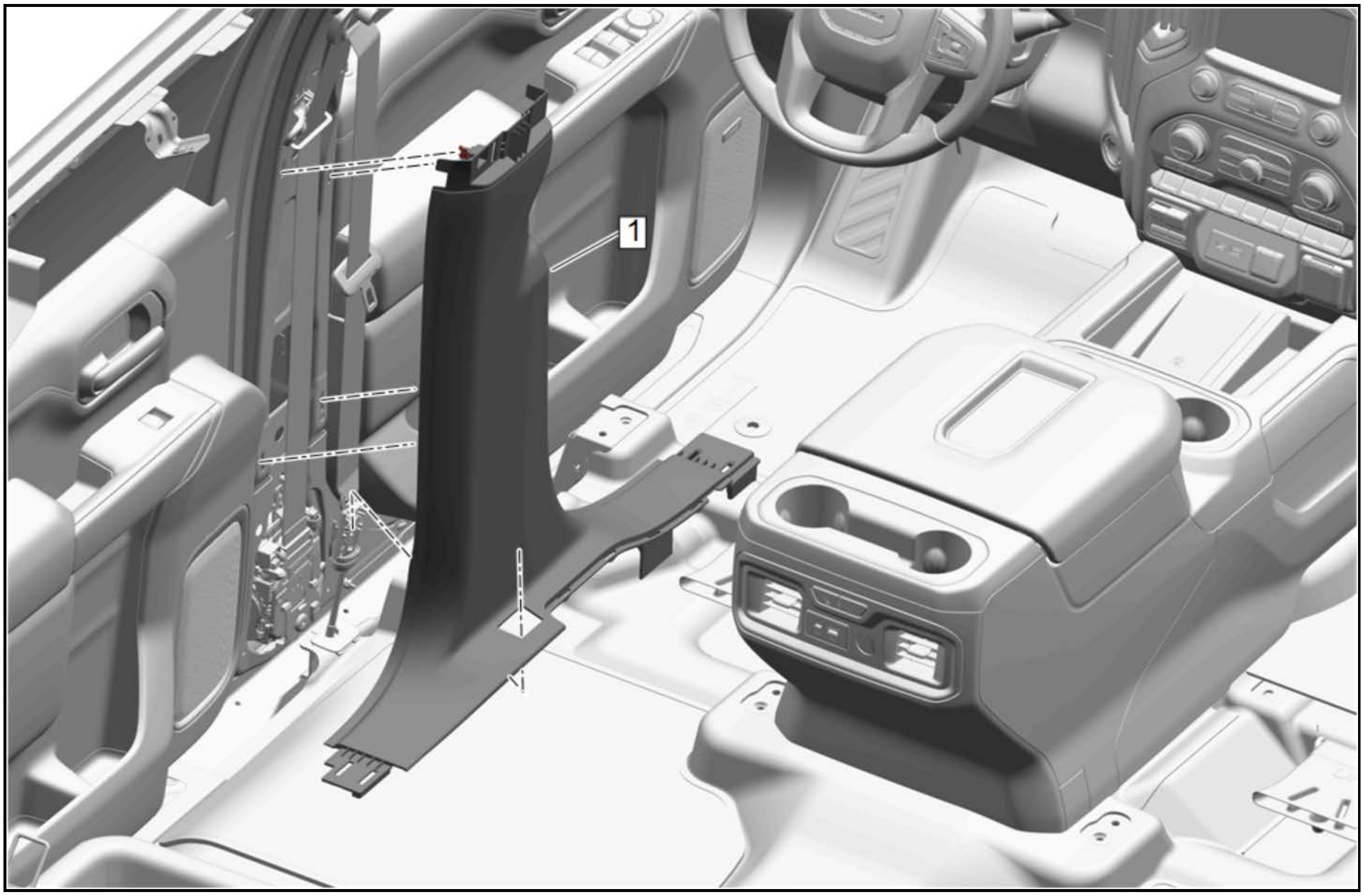


5039706

1. Front Seat Belt Retractor (3) » Install
2. Front Seat Belt Retractor Bolt - Lower (2) » Install and tighten — *Fastener Specifications on page 8-427*
3. Front Seat Belt Retractor Bolt - Upper (1) » Install and tighten — *Fastener Specifications on page 8-427*
4. Connect the electrical connector.

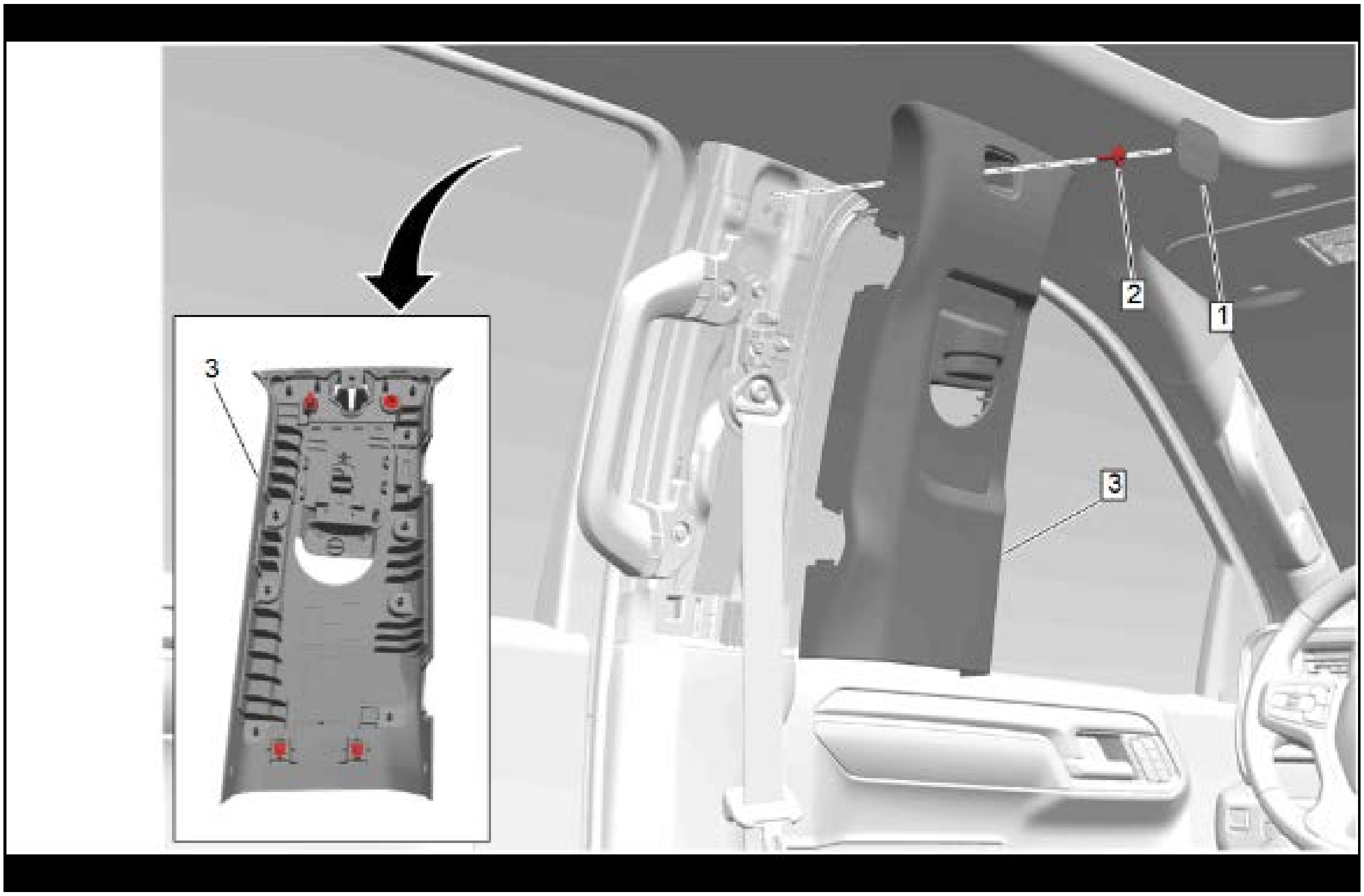


5. Front Seat Belt Retractor Guide Retainer (2) » Install
6. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
   - 6.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
   - 6.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
   - 6.3. Apply thread locking adhesive to the external threads of the component. *Adhesives, Fluids, Lubricants, and Sealers on page 8-432*
   - 6.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
7. Front Seat Belt Retractor D Ring Bolt (1) » Install and tighten — *Fastener Specifications on page 8-427*



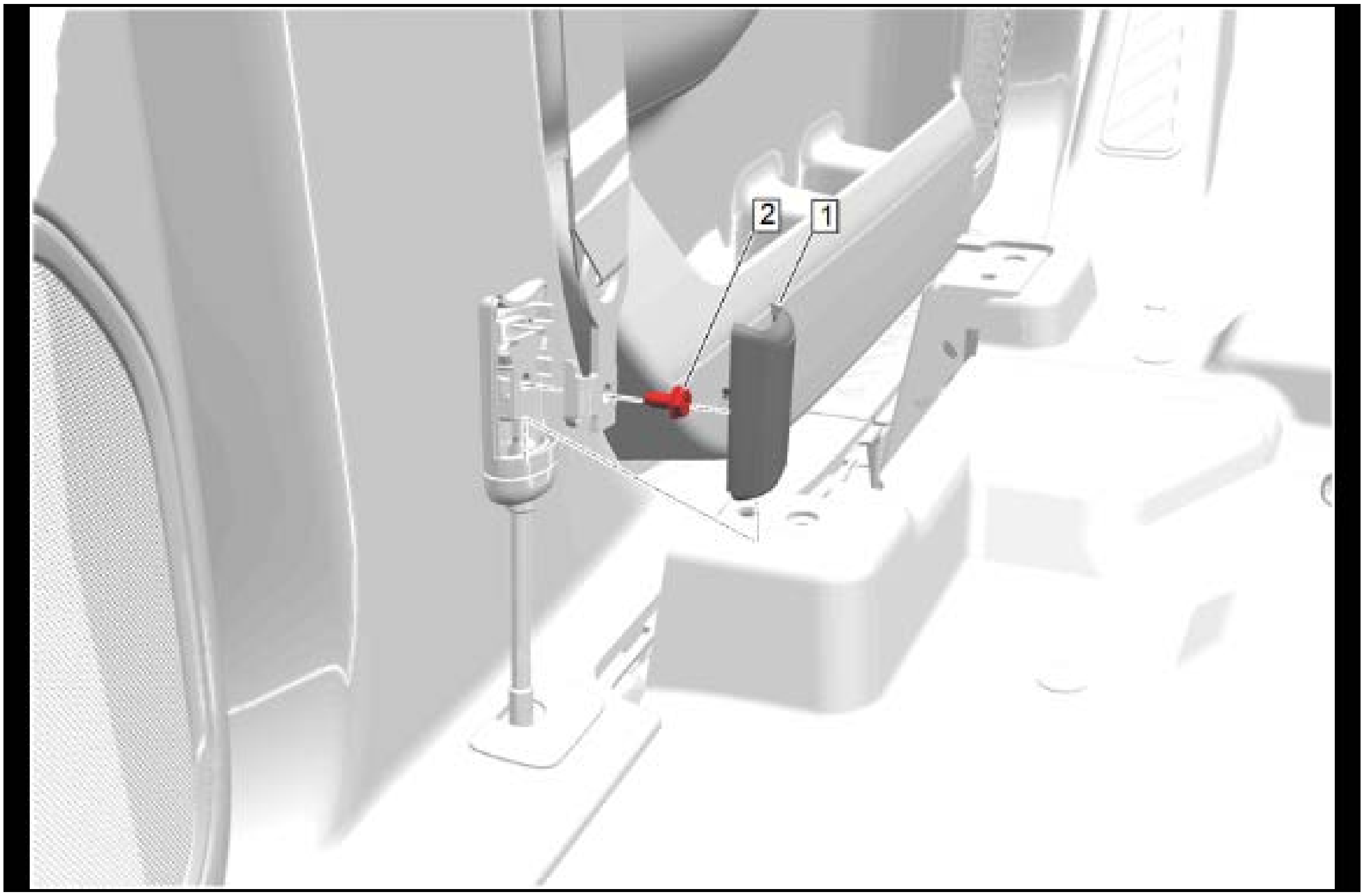
5001632

8. Feed the front seat belt anchor plate tensioner through the center pillar lower trim panel (1).
9. Ensure the seat belt webbing does not become trapped during installation.
10. Center Pillar Lower Trim Panel (1) » Install



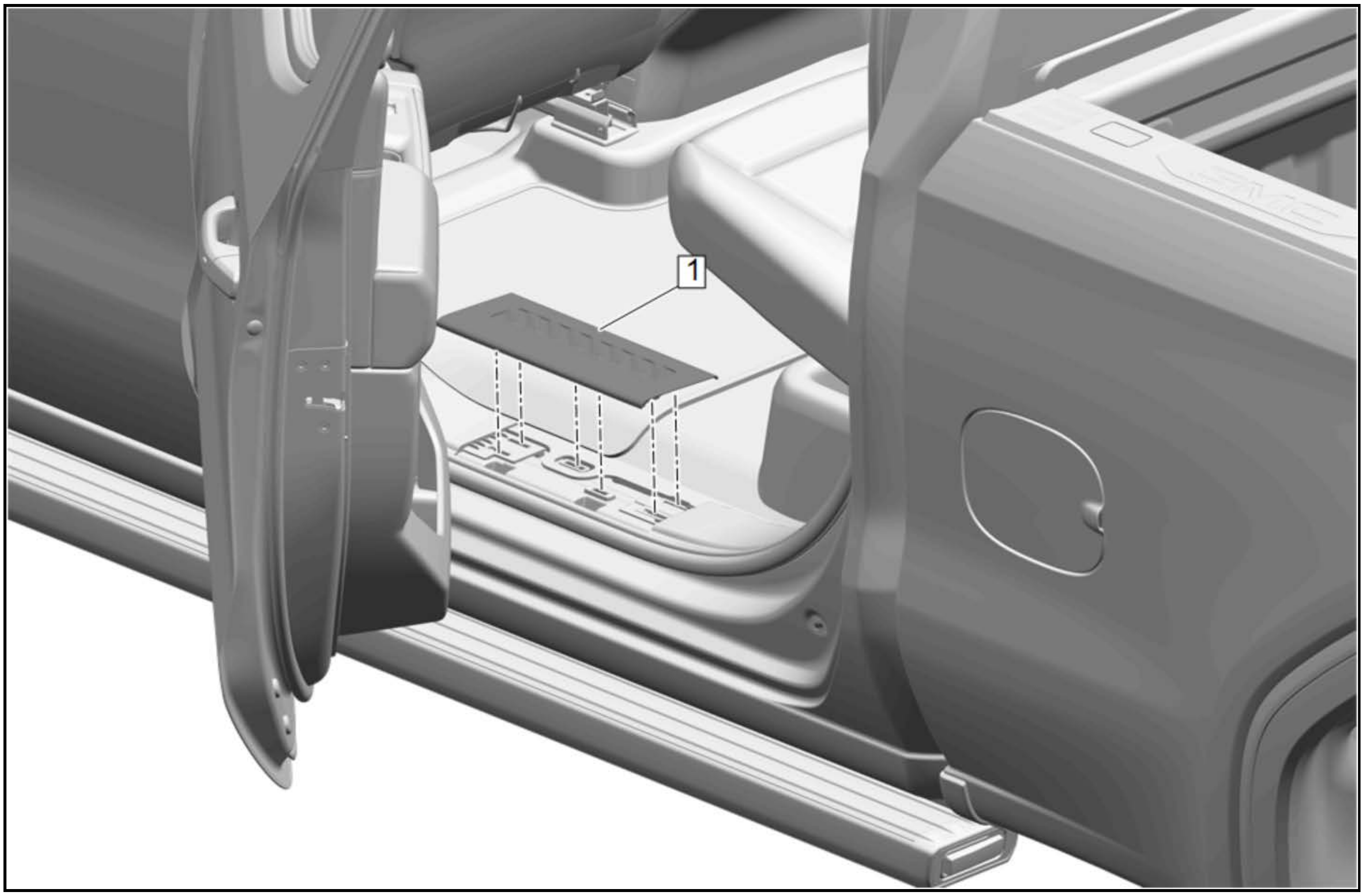
5904659

11. Feed the seat belt through the Center Pillar Upper Trim Panel (3) .
12. Center Pillar Upper Trim Panel (3) » Install
13. Center Pillar Upper Garnish Molding Bolt (2) » Install and tighten
14. Center Pillar Upper Trim Panel Bolt Cap (1) » Install



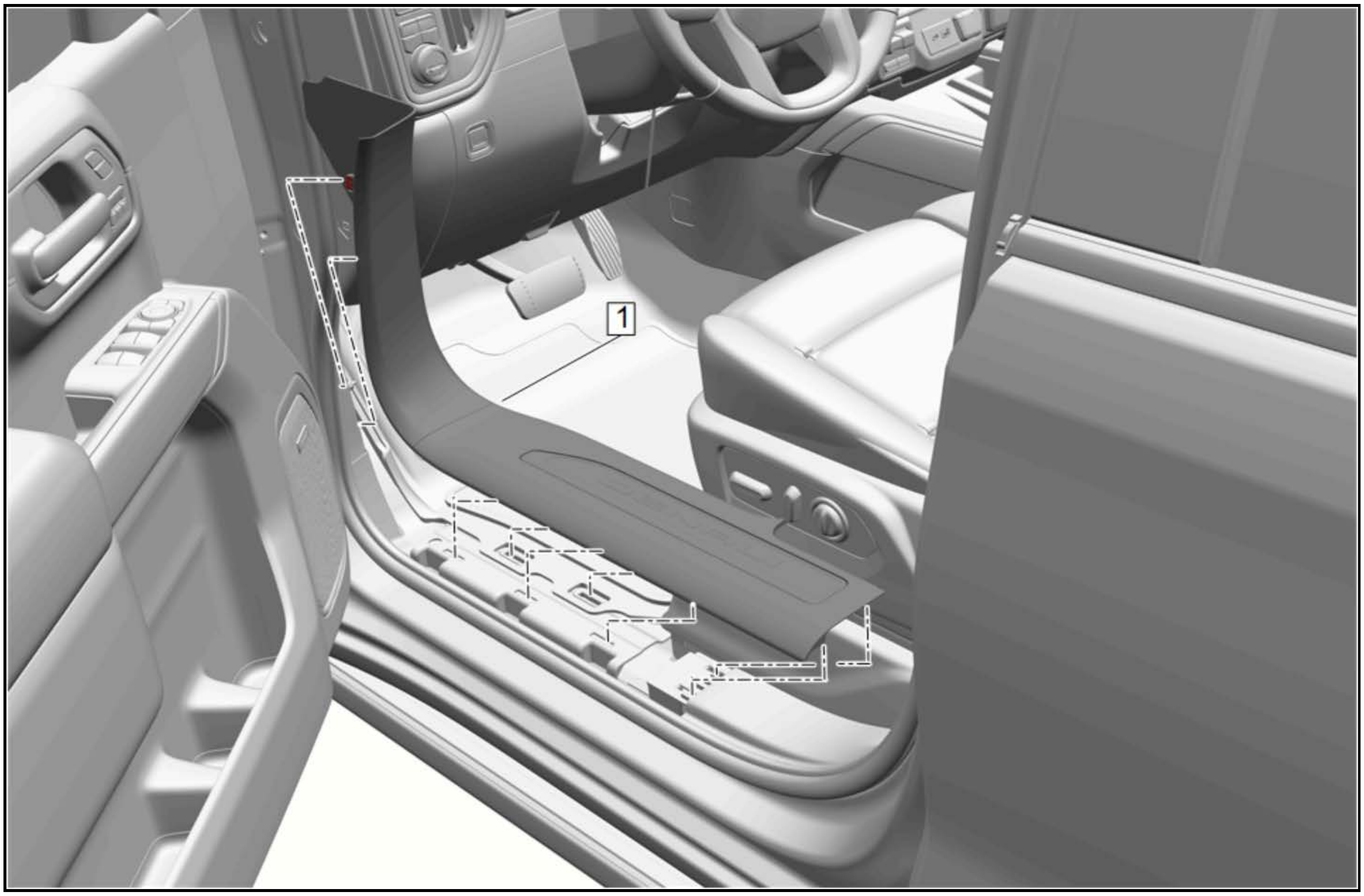
5904712

15. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    15.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    15.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    15.3. Apply thread locking adhesive to the external threads of the component. *Adhesives, Fluids, Lubricants, and Sealers on page 8-432*
    15.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
16. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Install and tighten — *Fastener Specifications on page 8-427*
17. Front Seat Belt Anchor Plate Tensioner Cover (1) » Install



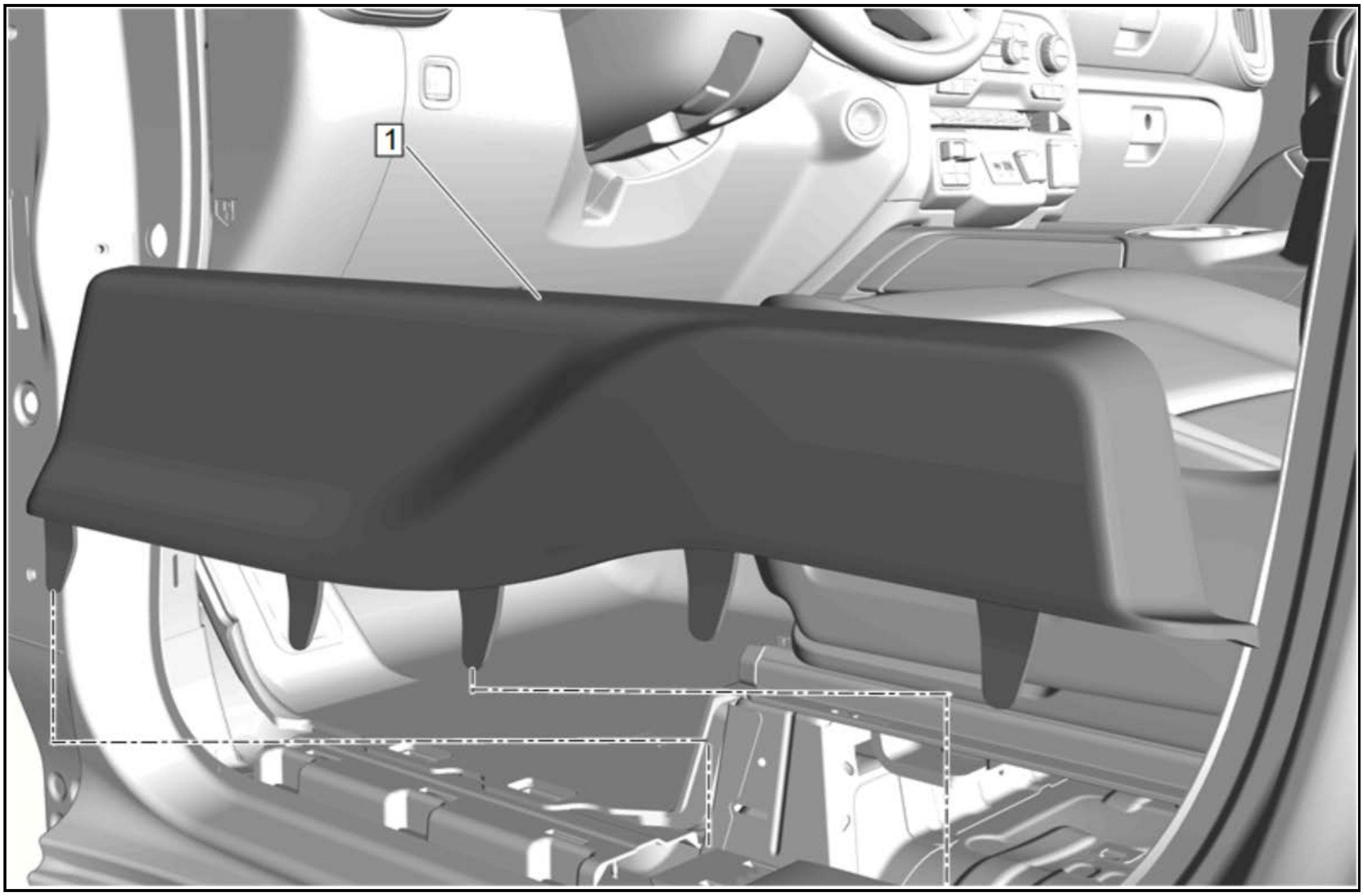
5001935

18. Rear Side Door Sill Garnish Molding (1) » Install



5002081

19. Starting at the front of the front side door sill garnish molding (1) engage the 2 retaining clips on the forward vertical wall.
20. Work your way rearward engaging the front side door sill garnish molding retaining clips.
21. Front Side Door Sill Garnish Molding (1) » Install



4996050

22. Front Seat Adjuster Track Finish Cover (1) » Install
23. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

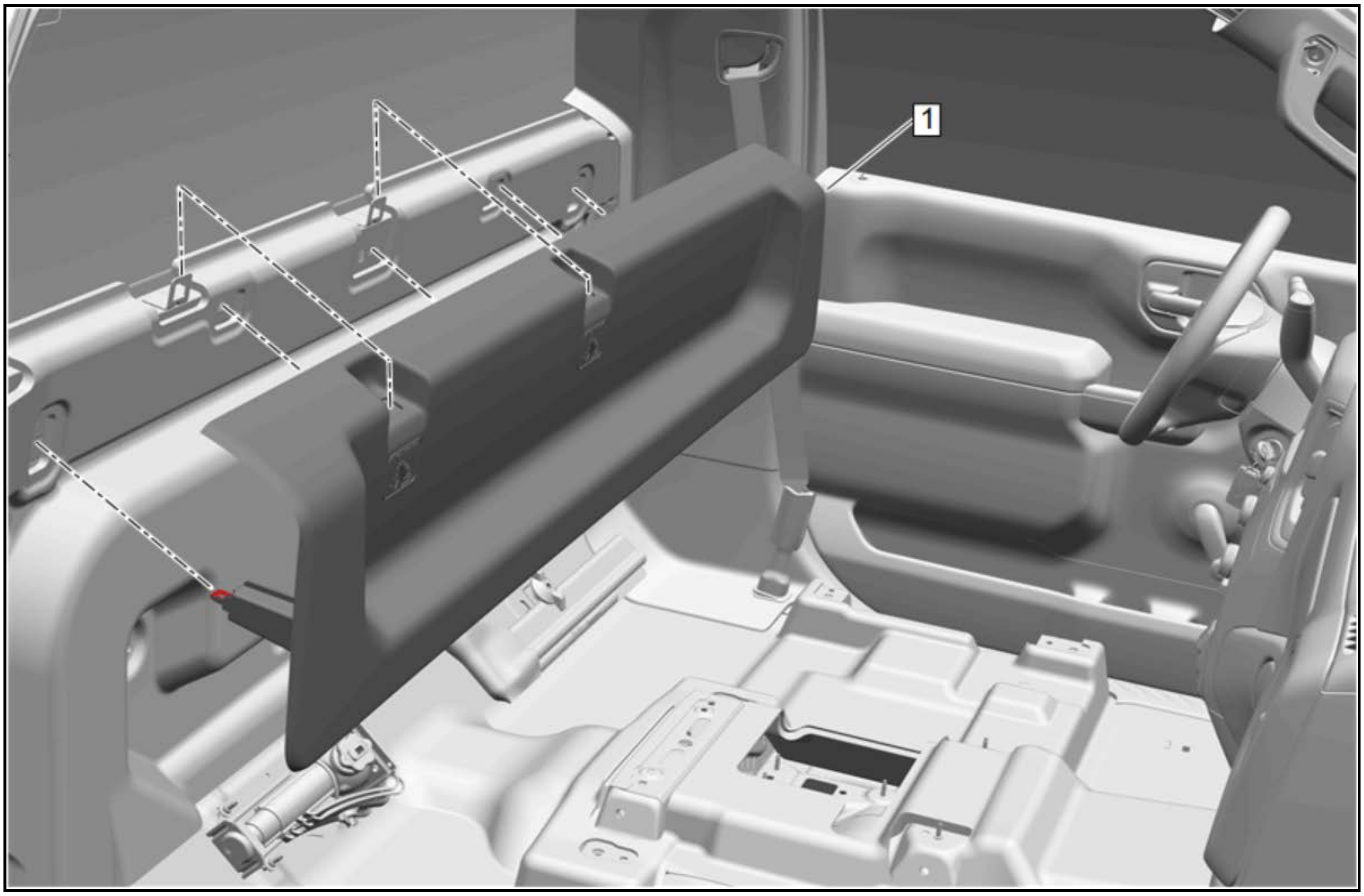
Front Seat Belt Anchor Plate Tensioner Replacement (Regular Cab)

Object-ID=5969743 Owner=Cameli, Jordan LMD=01-Feb-2022 LMB=Sasina, Robert

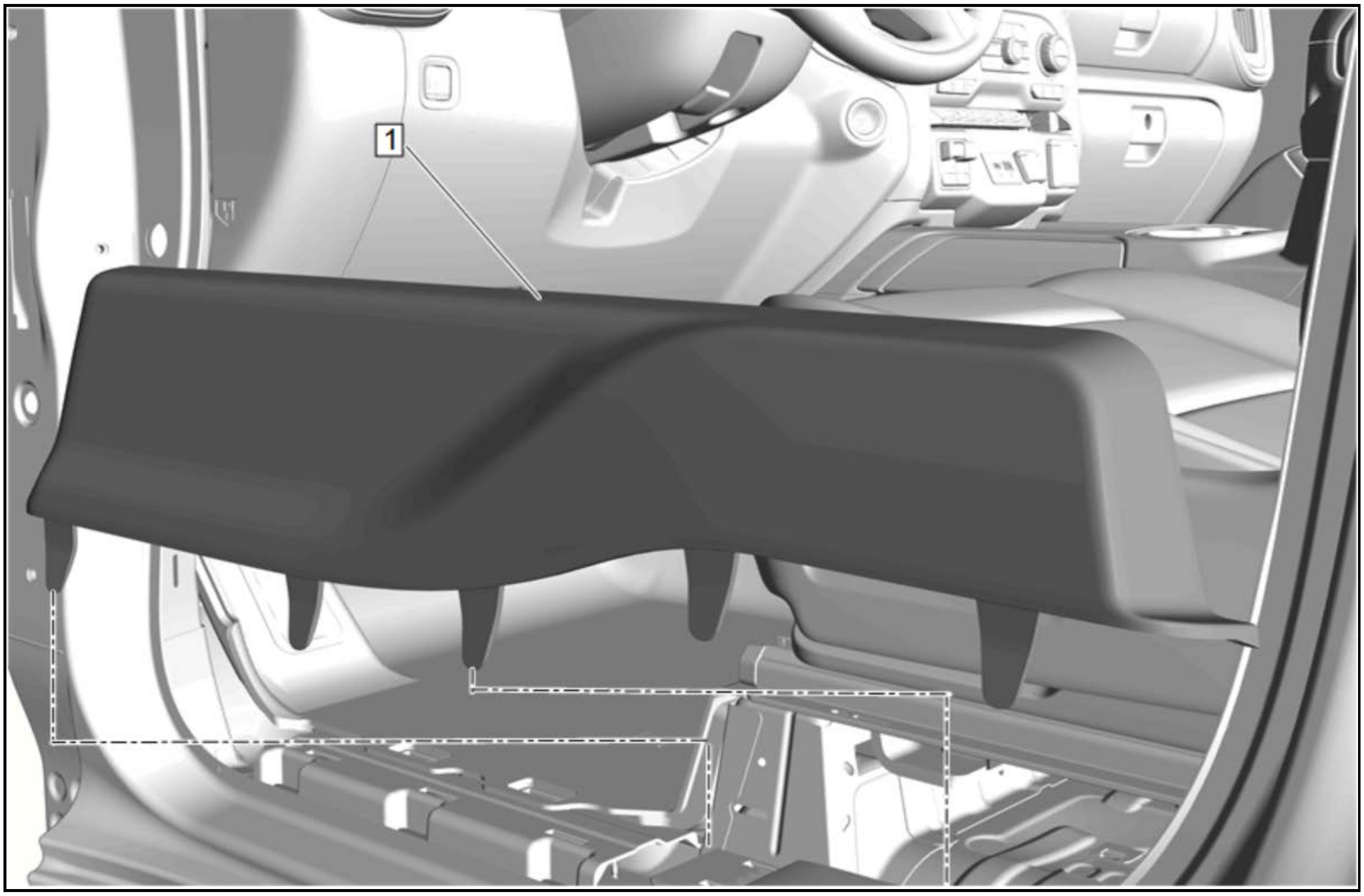
Caution: SIO-ID=2053558 LMD=25-Jan-2008 Use care when working around the head curtain inflator module. Sharp tools may puncture the curtain airbag. If the head curtain inflator module is damaged in any way, it must be replaced.

Removal Procedure

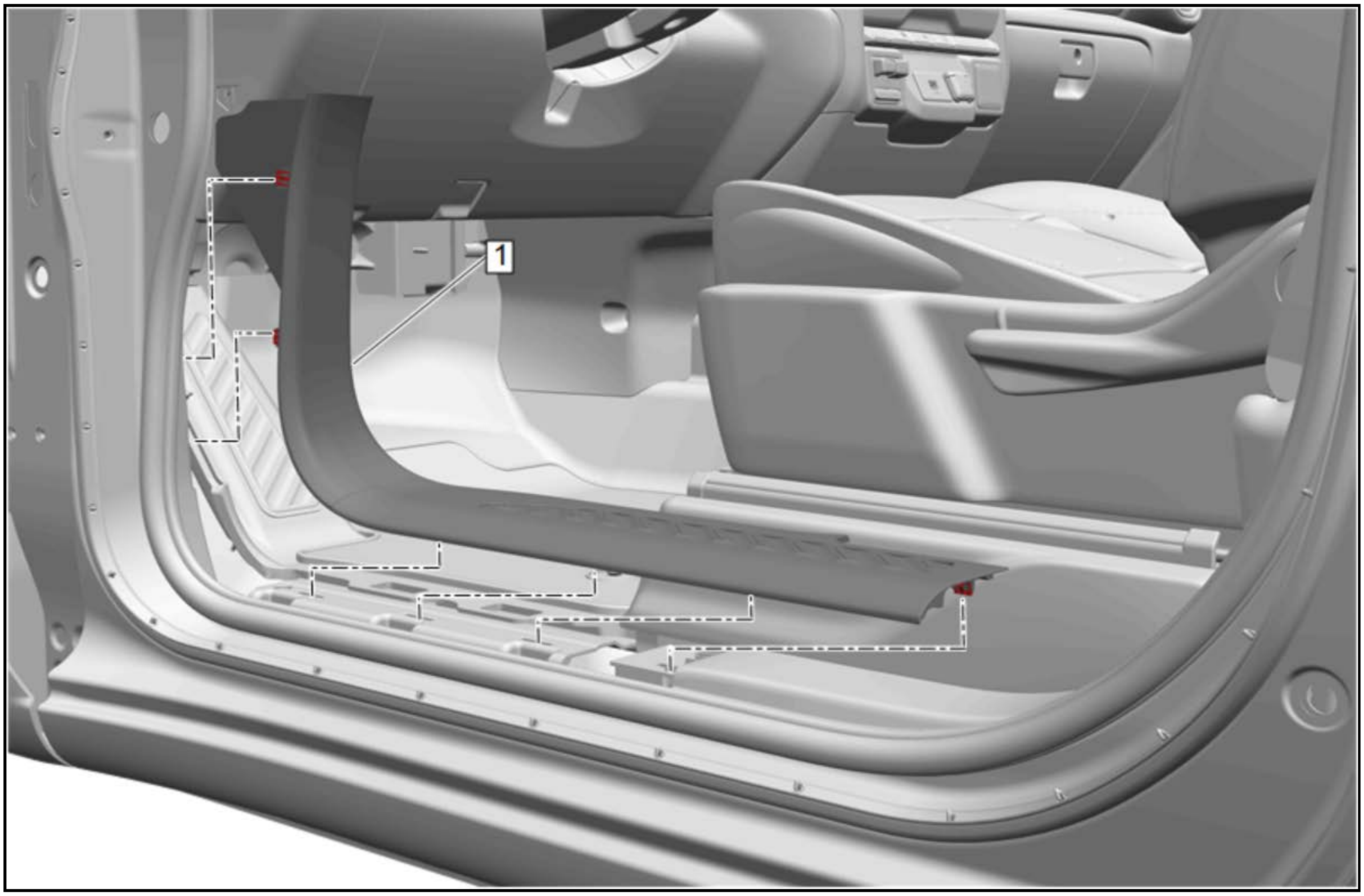
1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*
2. Fold the center seat armrest to the down position.
3. Recline both front seat backs forward and slide both seats forward.



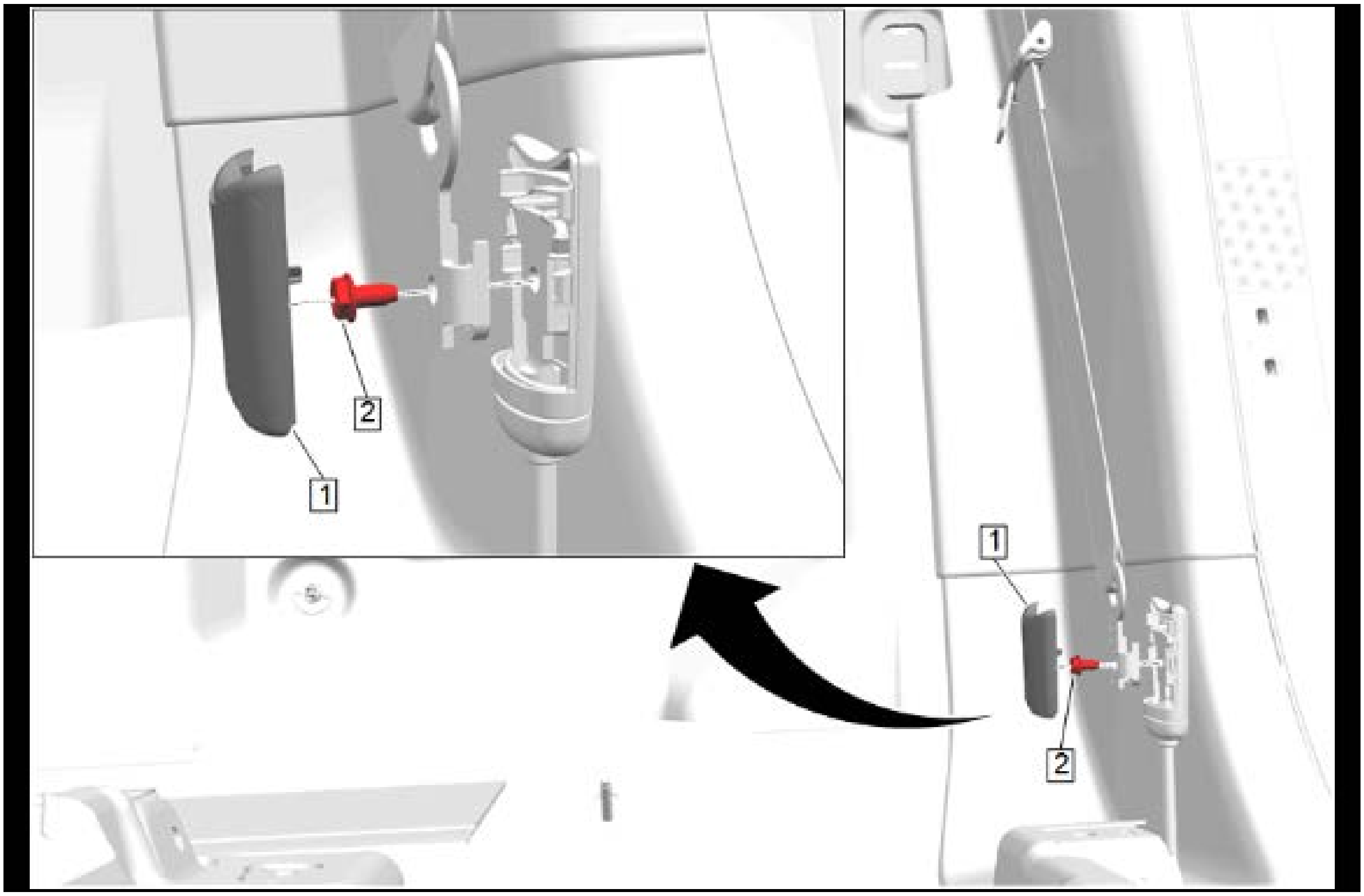
4. Carefully pull the rear window lower garnish molding (1) forward around all edges then the middle of the part to disengage the clips from the sheet metal.
5. After all integral clips are disengaged, lift the rear window lower garnish molding (1) up and forward to clear the 2 rear end panel brackets that the rear window lower garnish molding (1) sits over.



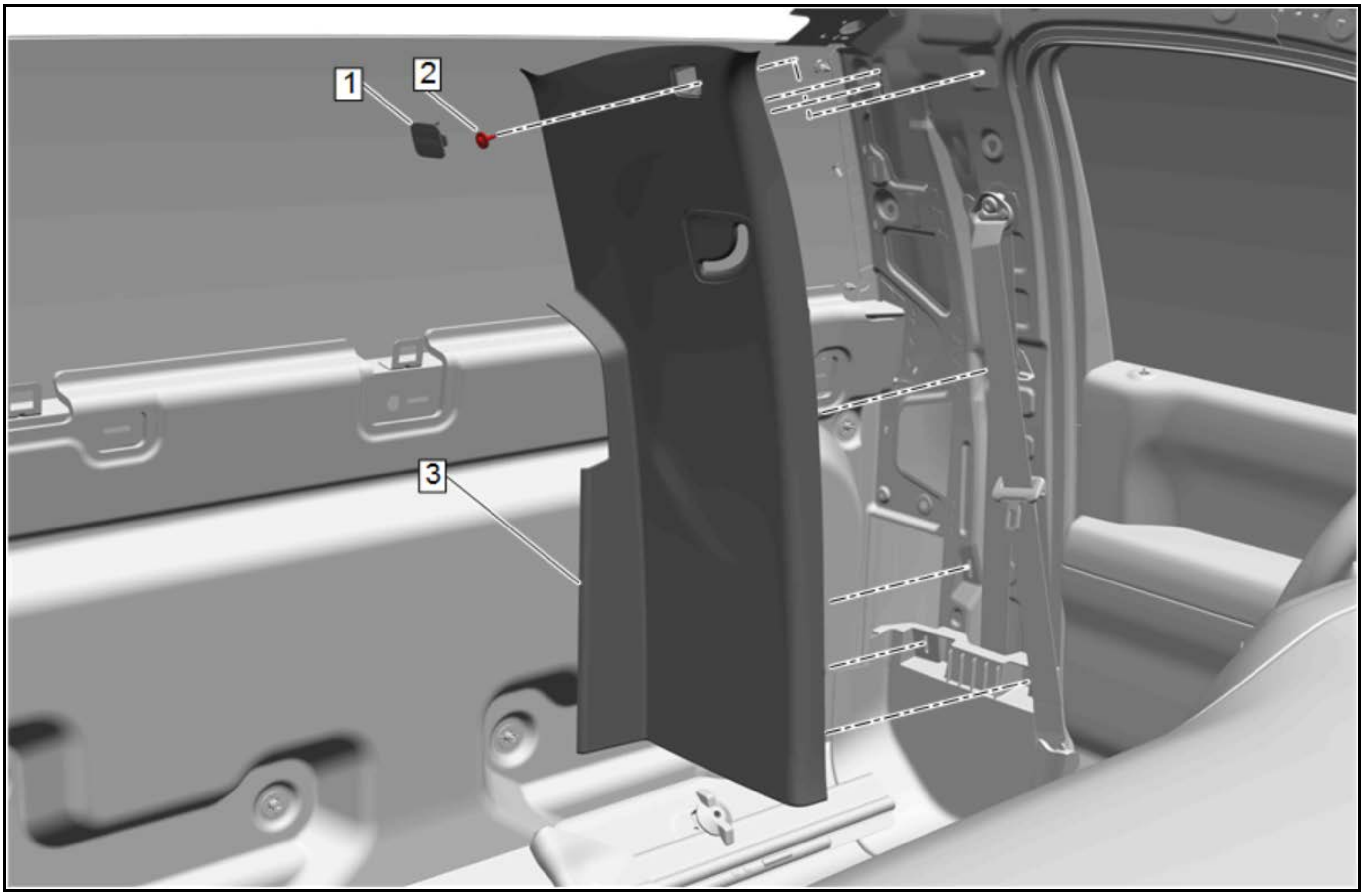
6. Using a suitable plastic trim tool, gently pry upwards to release the retaining clips.
7. Front Seat Adjuster Track Finish Cover (1) » Remove



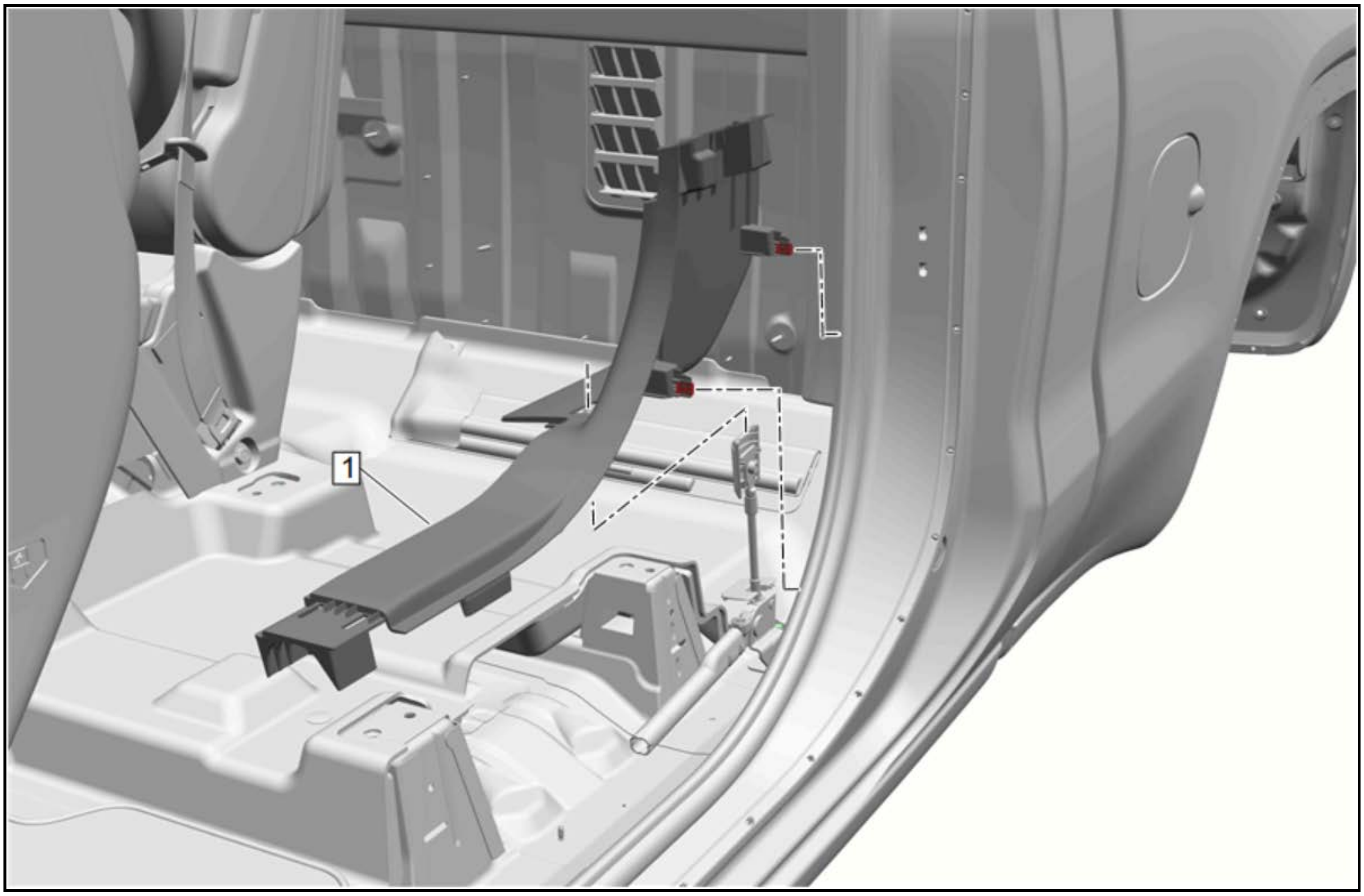
8. Starting at the rear of the garnish molding (1), pull upward at the B-Pillar joint to release the up/down clips first.
9. Rotate the sill garnish molding (1) inboard after releasing up/down clips and pull rearward to disengage the two clips on the forward vertical wall.
10. Front Side Door Sill Garnish Molding (1) » Remove



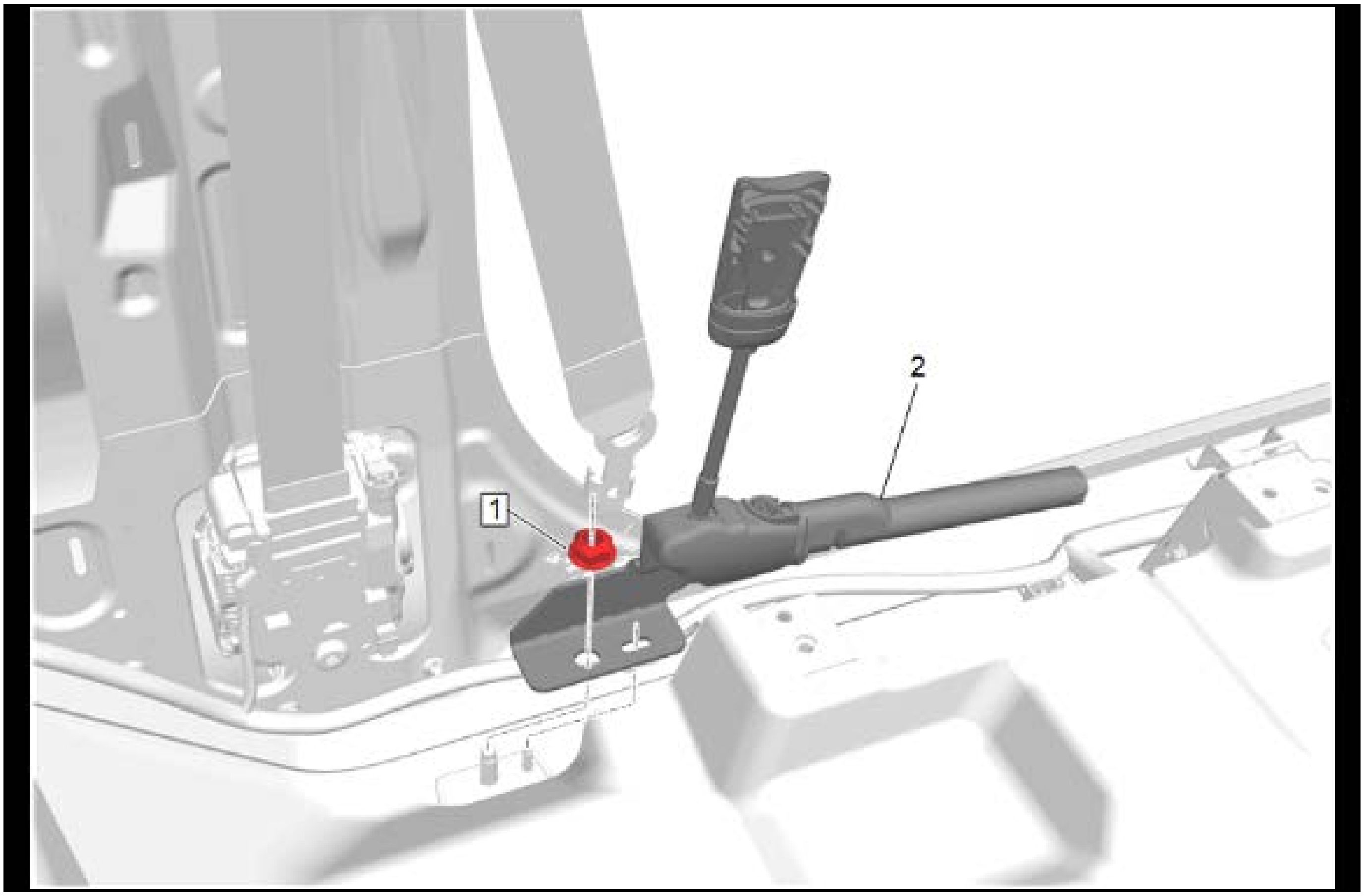
11. Front Seat Belt Anchor Plate Tensioner Cover (1) » Remove
12. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Remove



13. Use a small flat bladed tool to open the trim panel bolt cap (1).
14. Body Lock Pillar Garnish Molding Bolt (2) » Remove
15. Starting at the top and working down with a trim tool, grasp the body lock pillar garnish molding (3) and gently pull the part away from the body to release the retainers.
16. Body Lock Pillar Garnish Molding (3) » Remove
17. Route the seat belt webbing through the body lock pillar garnish molding (3).

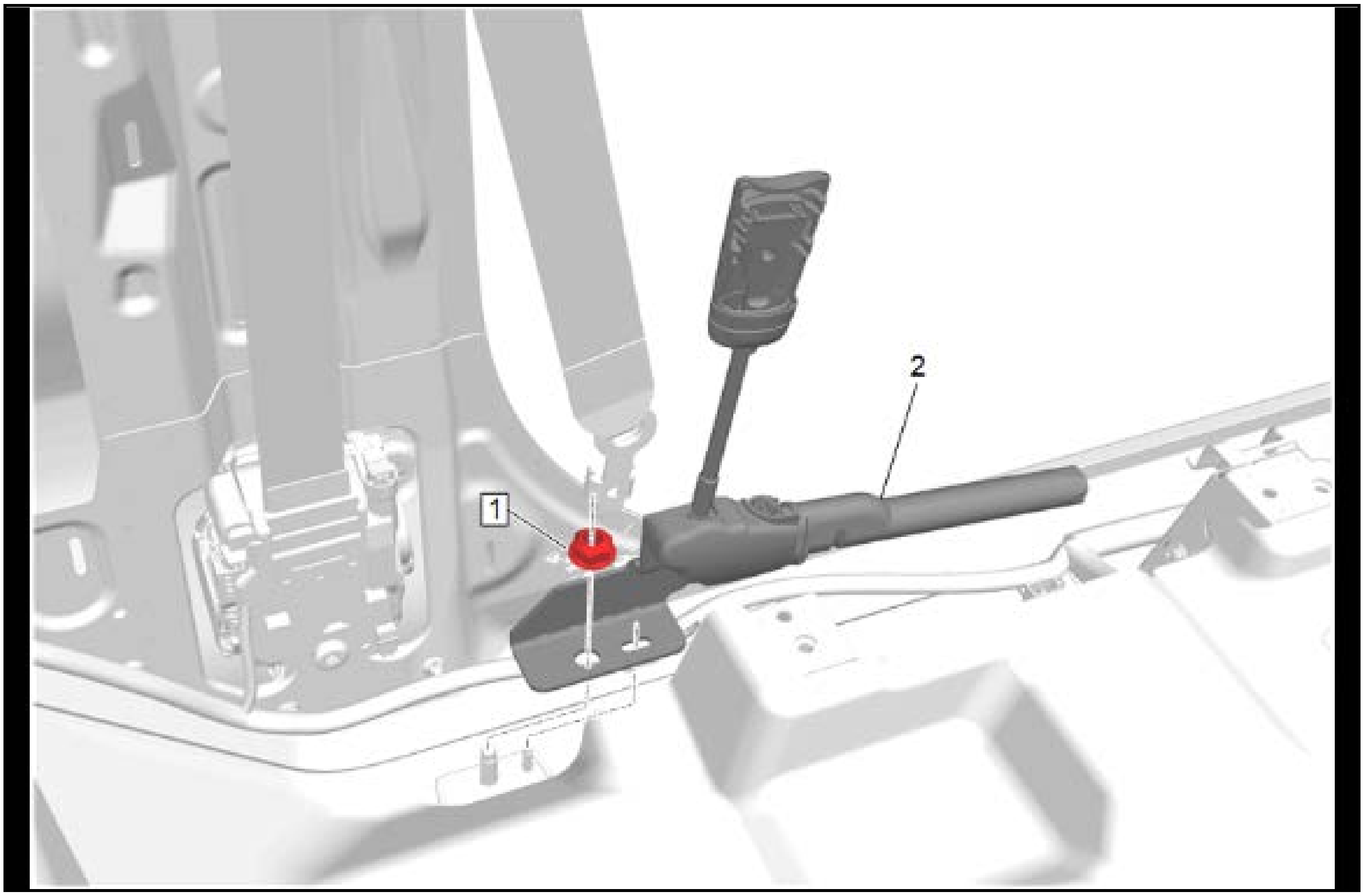


18. Quarter Trim Panel Cover » Remove
19. Using a flat-bladed plastic trim tool, release the retaining clips.
20. Rear Side Door Sill Garnish Molding (1) » Remove



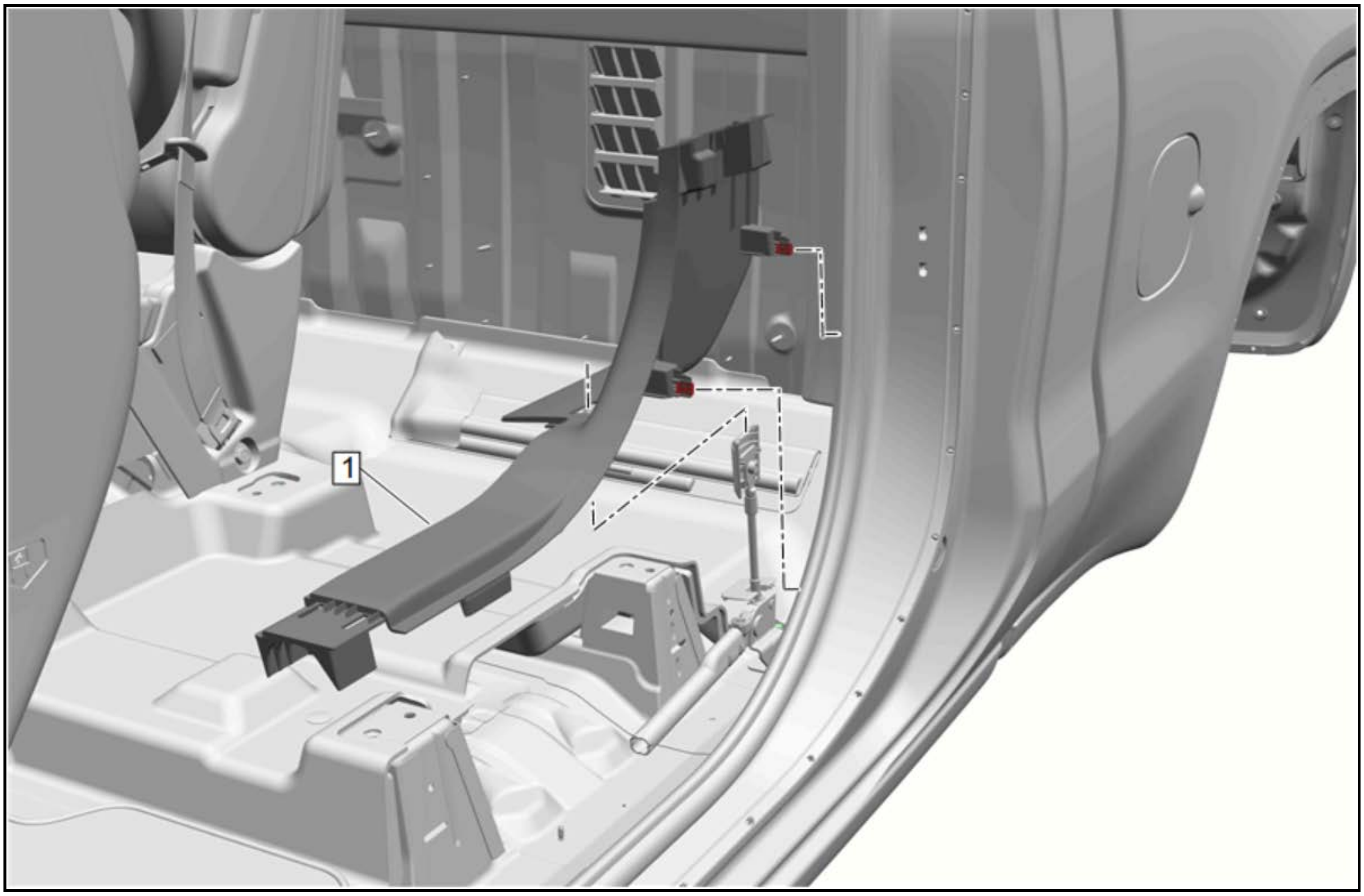
21. Disconnect the electrical connector.
22. Front Seat Belt Nut (1) » Remove
23. Front Seat Belt Anchor Plate Tensioner (2) » Remove

Installation Procedure

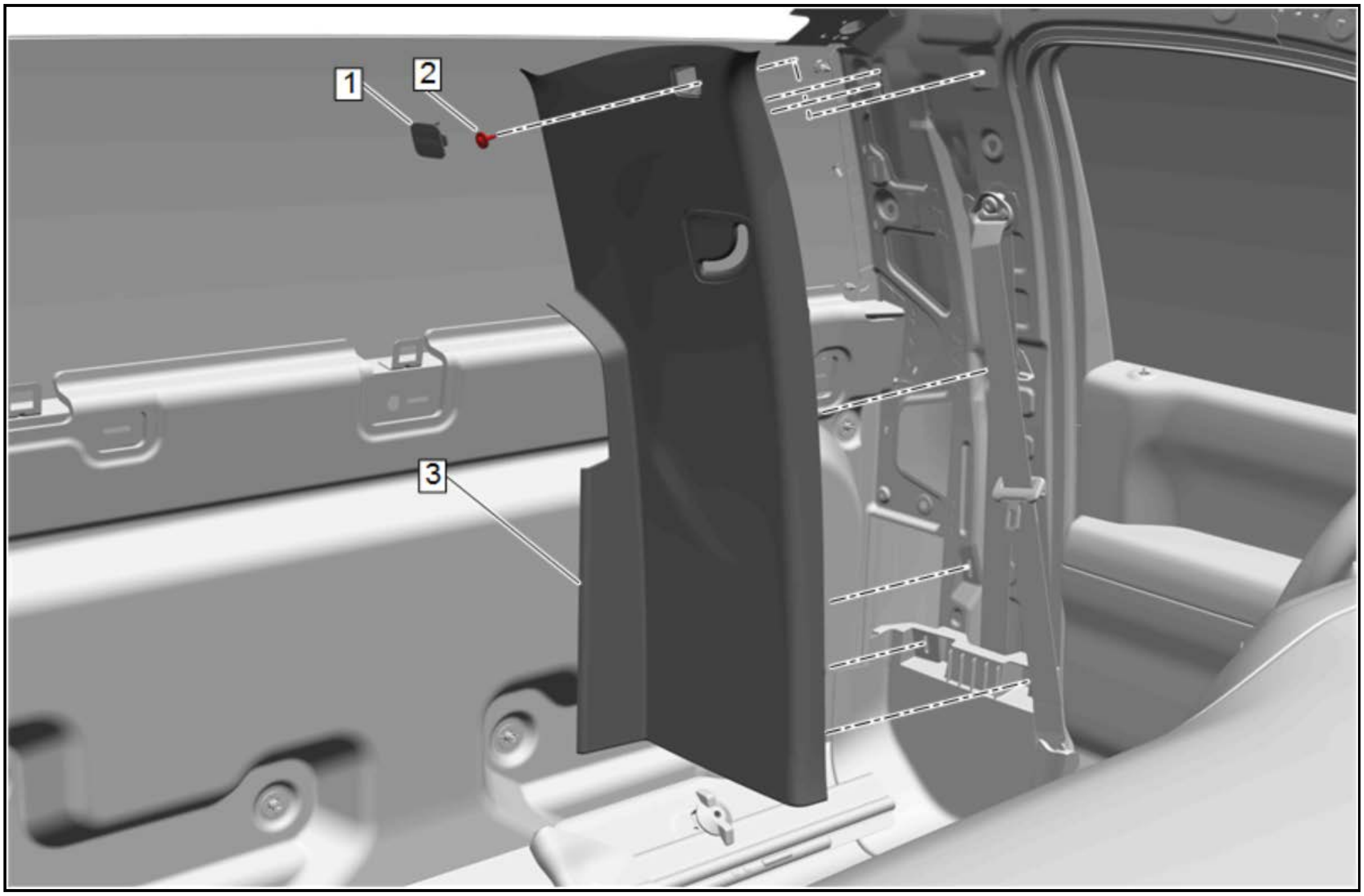


5969476

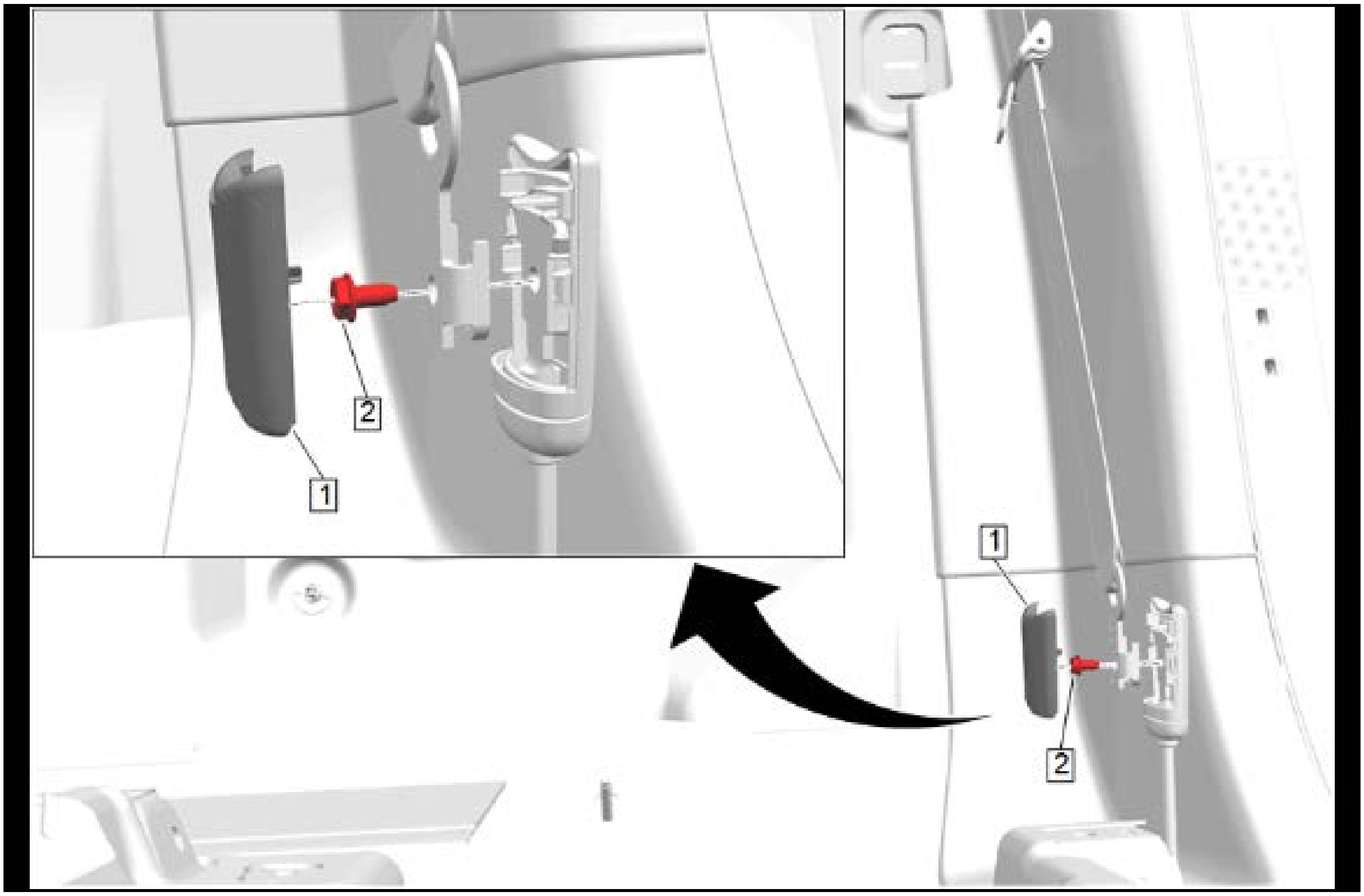
1. Front Seat Belt Anchor Plate Tensioner (2) » Install
2. Front Seat Belt Nut (1) » Install and tighten — *Fastener Specifications on page 8-427*
3. Connect the electrical connector.



4. Rear Side Door Sill Garnish Molding (1) » Install
5. Quarter Trim Panel Cover » Install

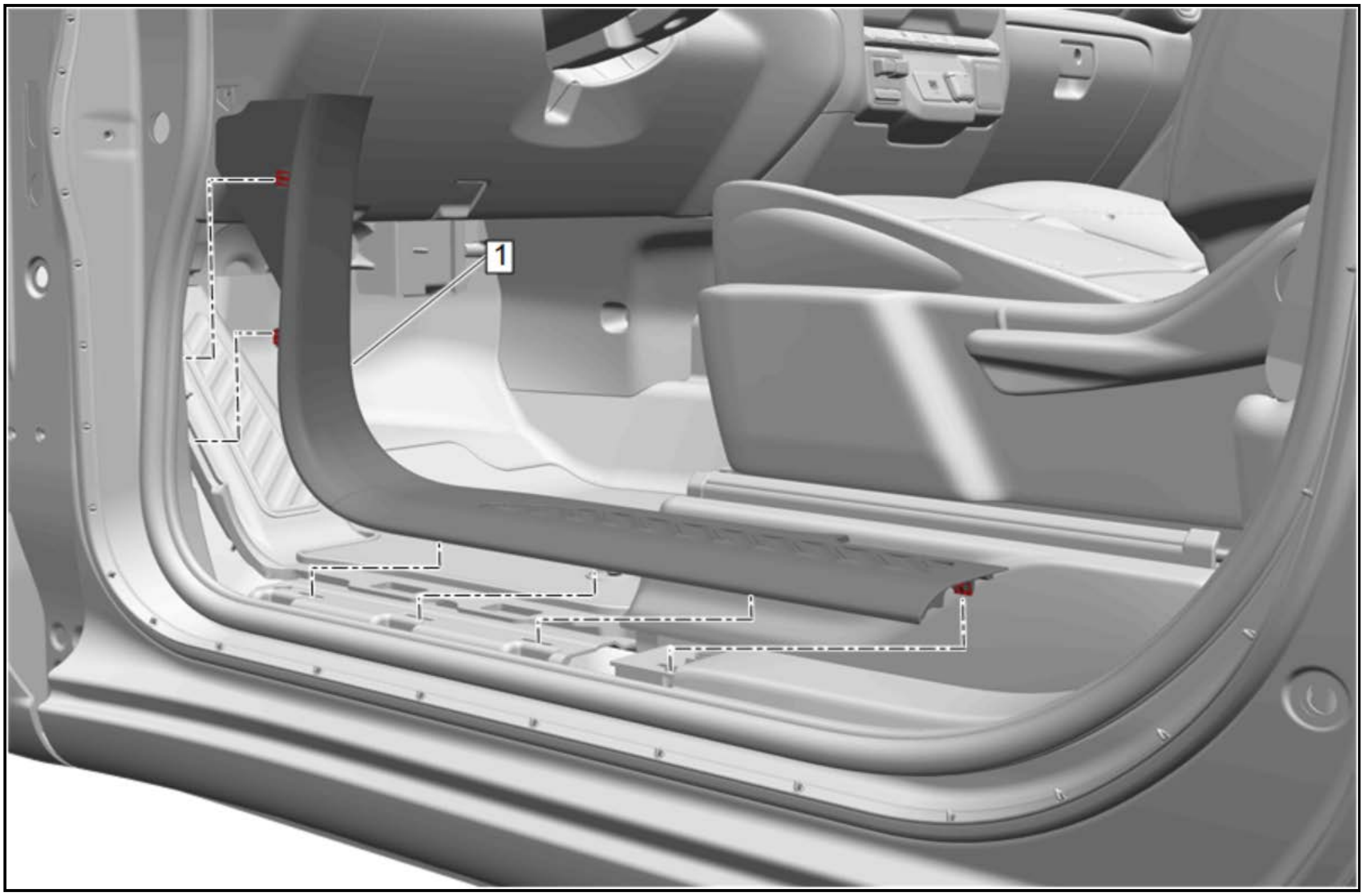


6. Ensure the seat belt webbing is fed through the seat belt opening of the body lock pillar garnish molding (3).
7. Body Lock Pillar Garnish Molding (3) » Install
8. Body Lock Pillar Garnish Molding Bolt (2) » Install and tighten
9. Center Pillar Upper Trim Panel Bolt Cap (1) » Install



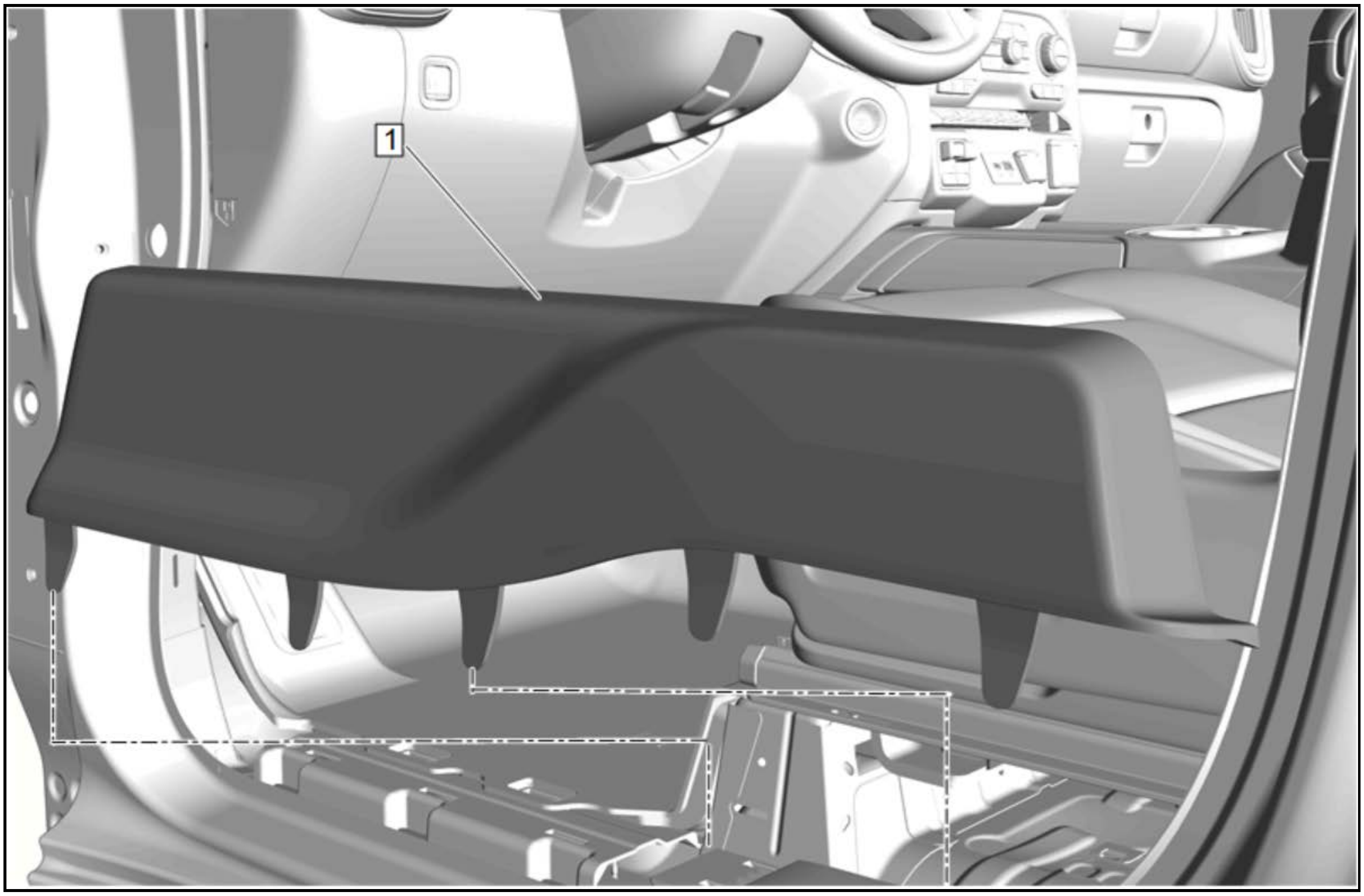
5969473

10. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    10.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    10.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    10.3. Apply thread locking adhesive to the external threads of the component. *Adhesives, Fluids, Lubricants, and Sealers on page 8-432*
    10.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
11. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Install and tighten — *Fastener Specifications on page 8-427*
12. Front Seat Belt Anchor Plate Tensioner Cover (1) » Install



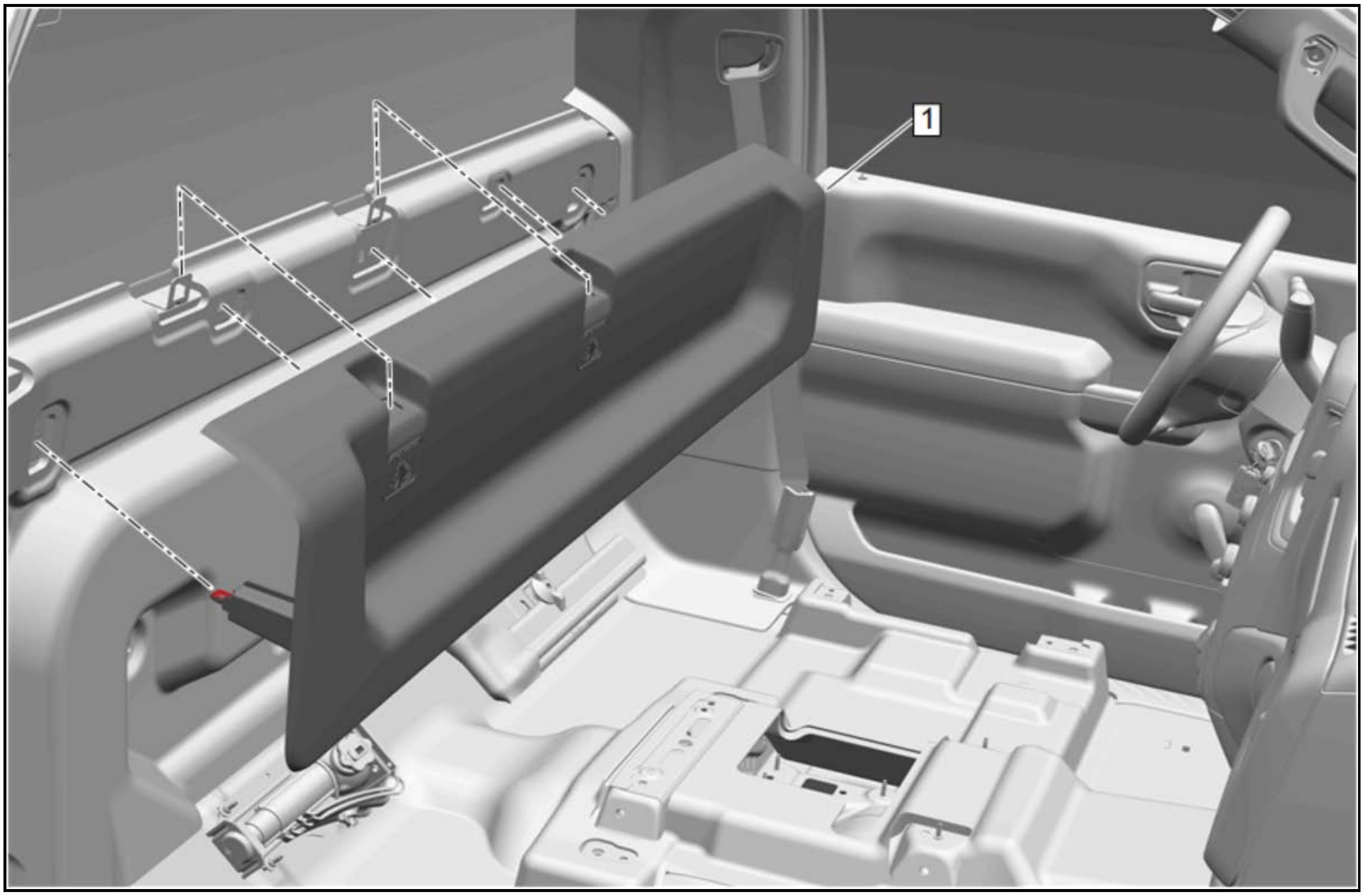
5156921

13. Starting at the front of the front side door sill garnish molding (1), engage the 2 retaining clips on the forward vertical wall.
14. Work your way rearward engaging the front side door sill garnish molding retaining clips.
15. Front Side Door Sill Garnish Molding (1) » Install



4996050

16. Front Seat Adjuster Track Finish Cover (1) » Install



17. Rear Window Lower Garnish Molding (1) » Install
18. Return the seat to its original position.
19. Enable the SIR System. *SIR Disabling and Enabling on page 8-481*

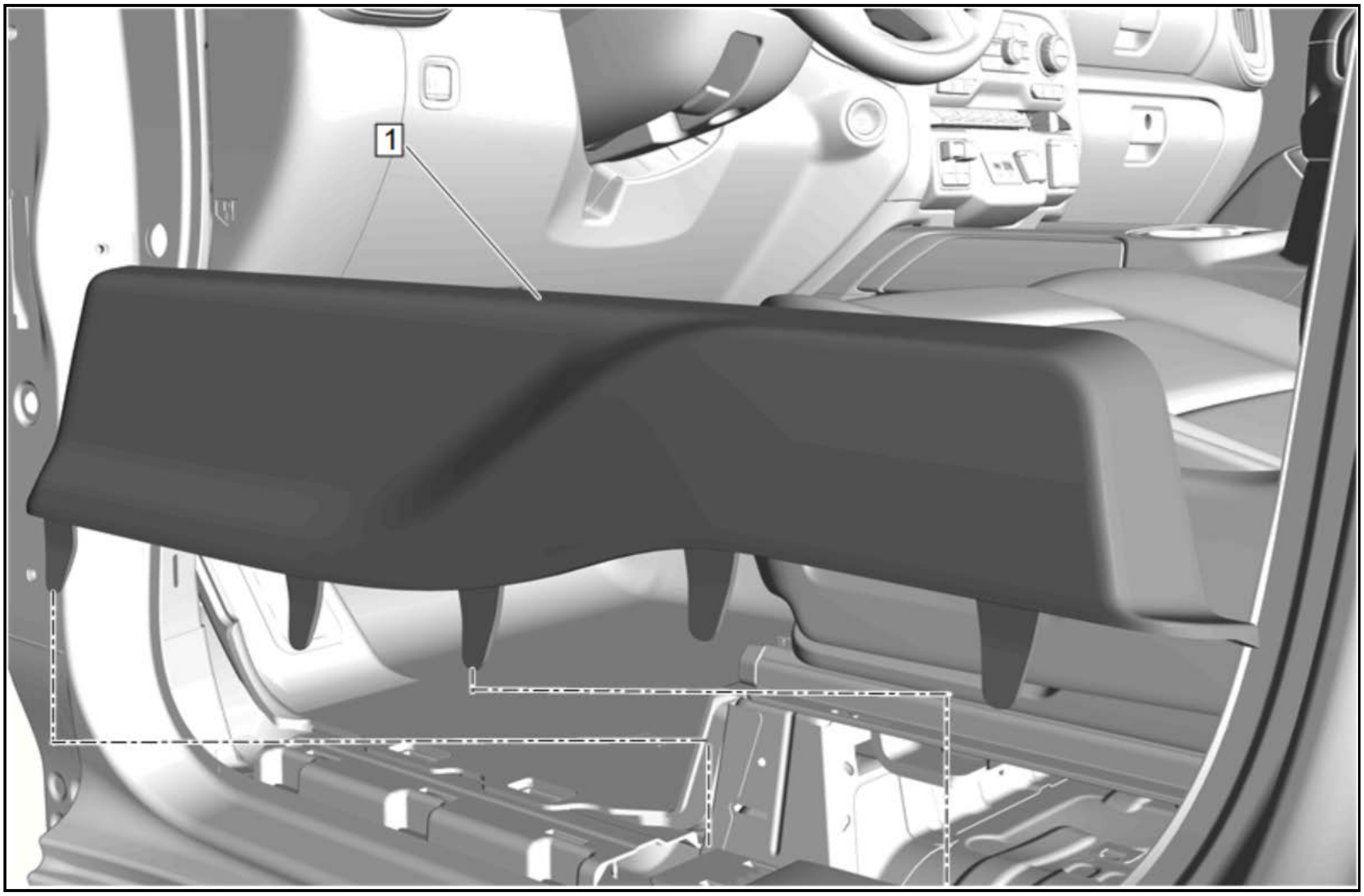
Front Seat Belt Anchor Plate Tensioner Replacement (Double Cab, Crew Cab)

Object-ID=5985648 Owner=Cameli, Jordan LMD=10-Feb-2022 LMB=Sasina, Robert

Caution: SIO-ID=2053558 LMD=25-Jan-2008 Use care when working around the head curtain inflator module. Sharp tools may puncture the curtain airbag. If the head curtain inflator module is damaged in any way, it must be replaced.

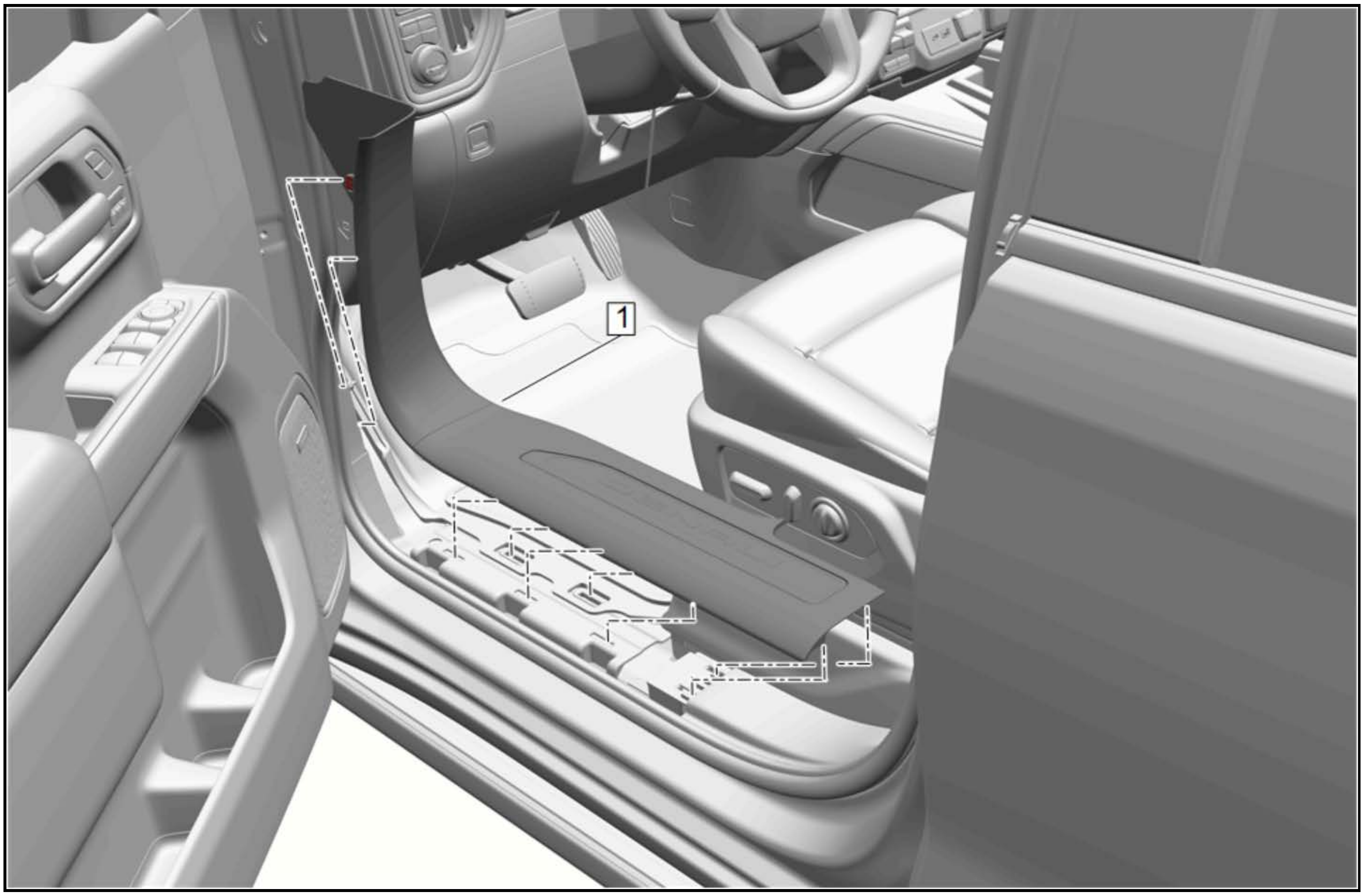
Removal Procedure

1. Disable the SIR system. *SIR Disabling and Enabling on page 8-481*



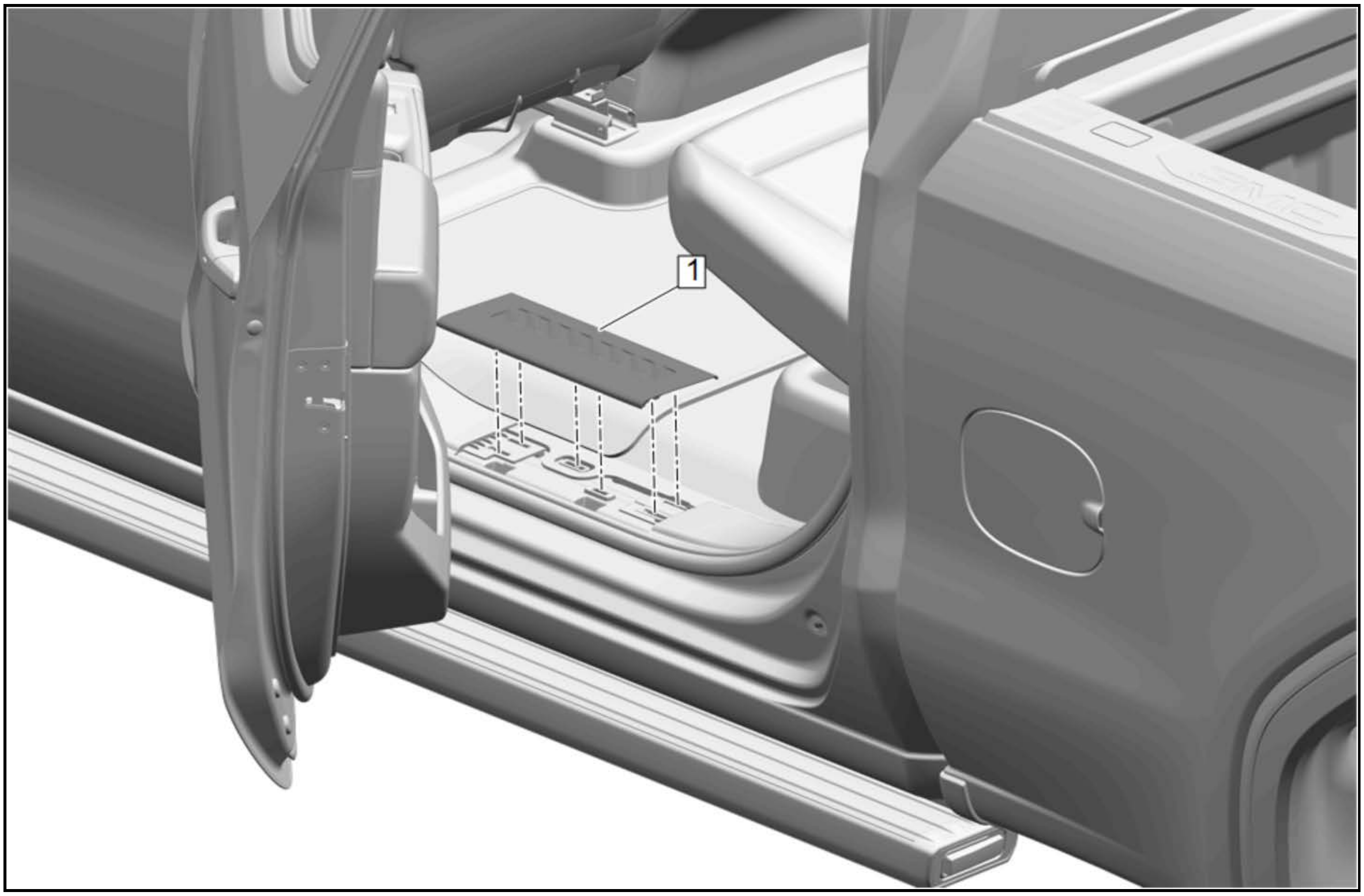
4996050

2. Using a suitable plastic trim tool, gently pry upwards to release the retaining clips.
3. Front Seat Adjuster Track Finish Cover (1) » Remove

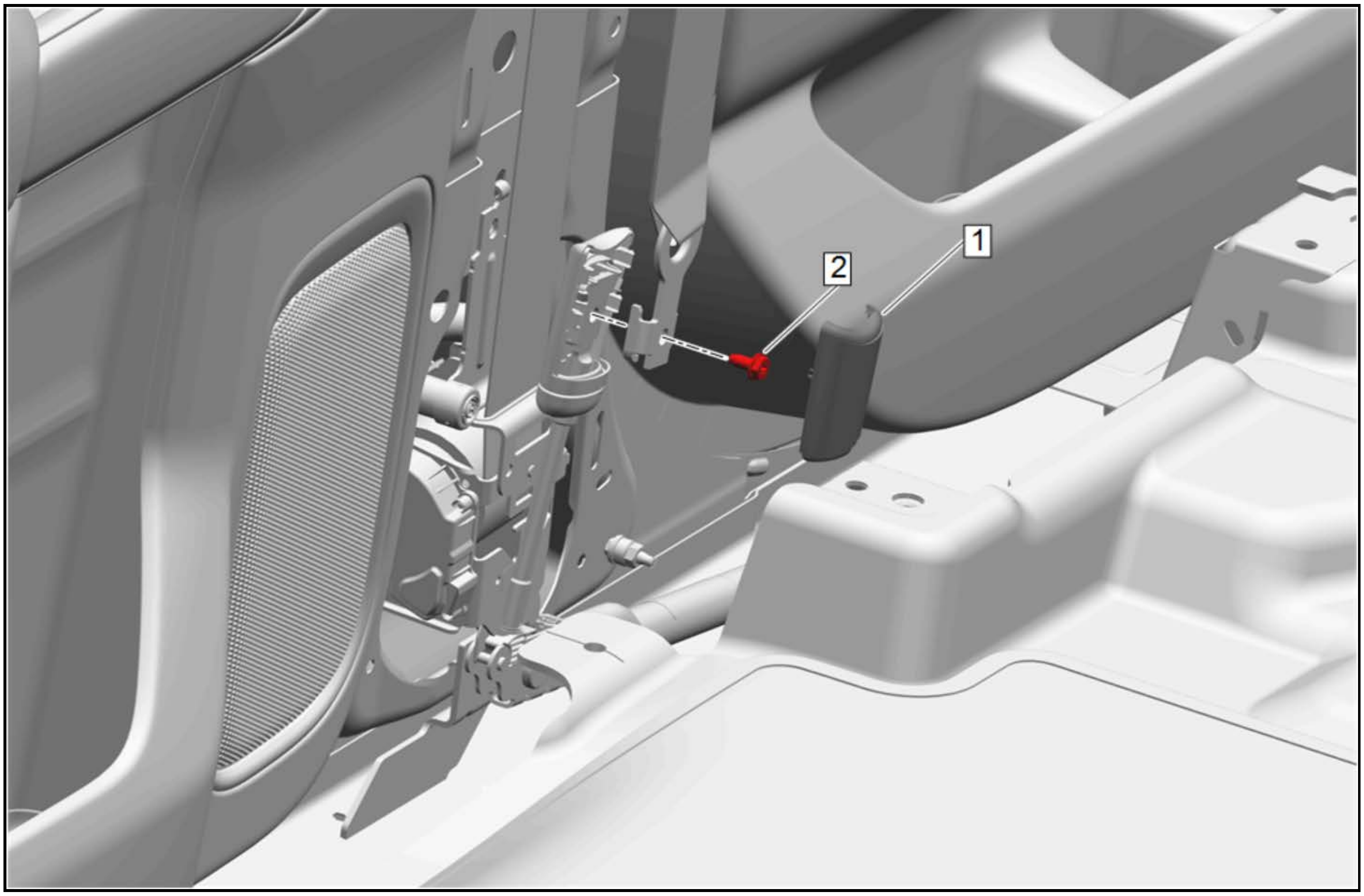


5002081

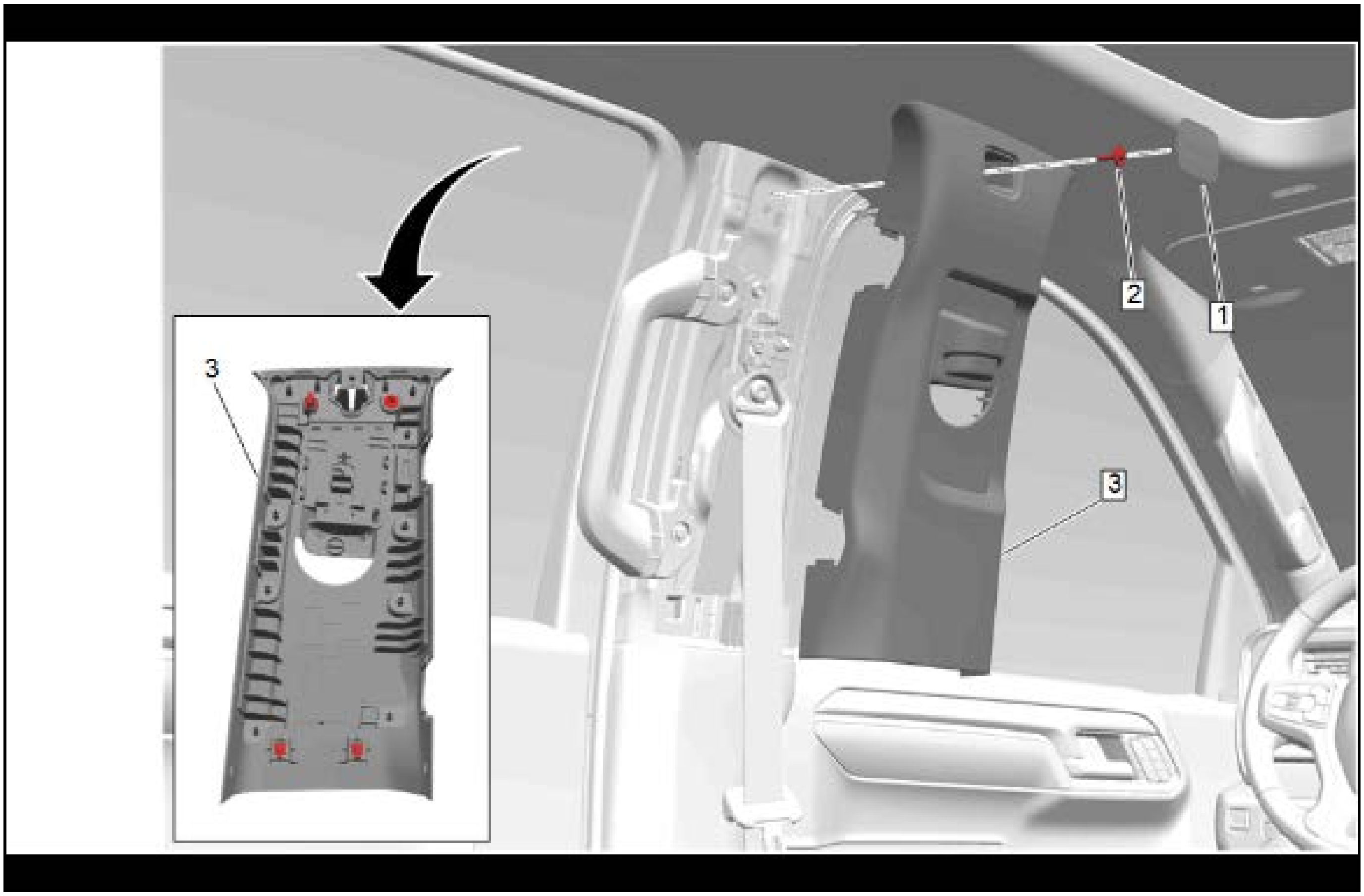
4. Starting at the rear of the front side door sill garnish molding (1) , pull upward at the B-Pillar joint to release the up/down clips first.
5. Rotate the front side door sill garnish molding (1) inboard after releasing up/down clips and pull rearward to disengage the two clips on the forward vertical wall.
6. Front Side Door Sill Garnish Molding (1) » Remove



7. Use a flat bladed plastic tool to disengage retaining clips between the rear side door sill garnish molding (1) and the center pillar lower trim panel.
8. Pull upward from both sides of the rear side door sill garnish molding (1) to disengage retaining clips front to rear.
9. Rear Side Door Sill Garnish Molding (1) » Remove



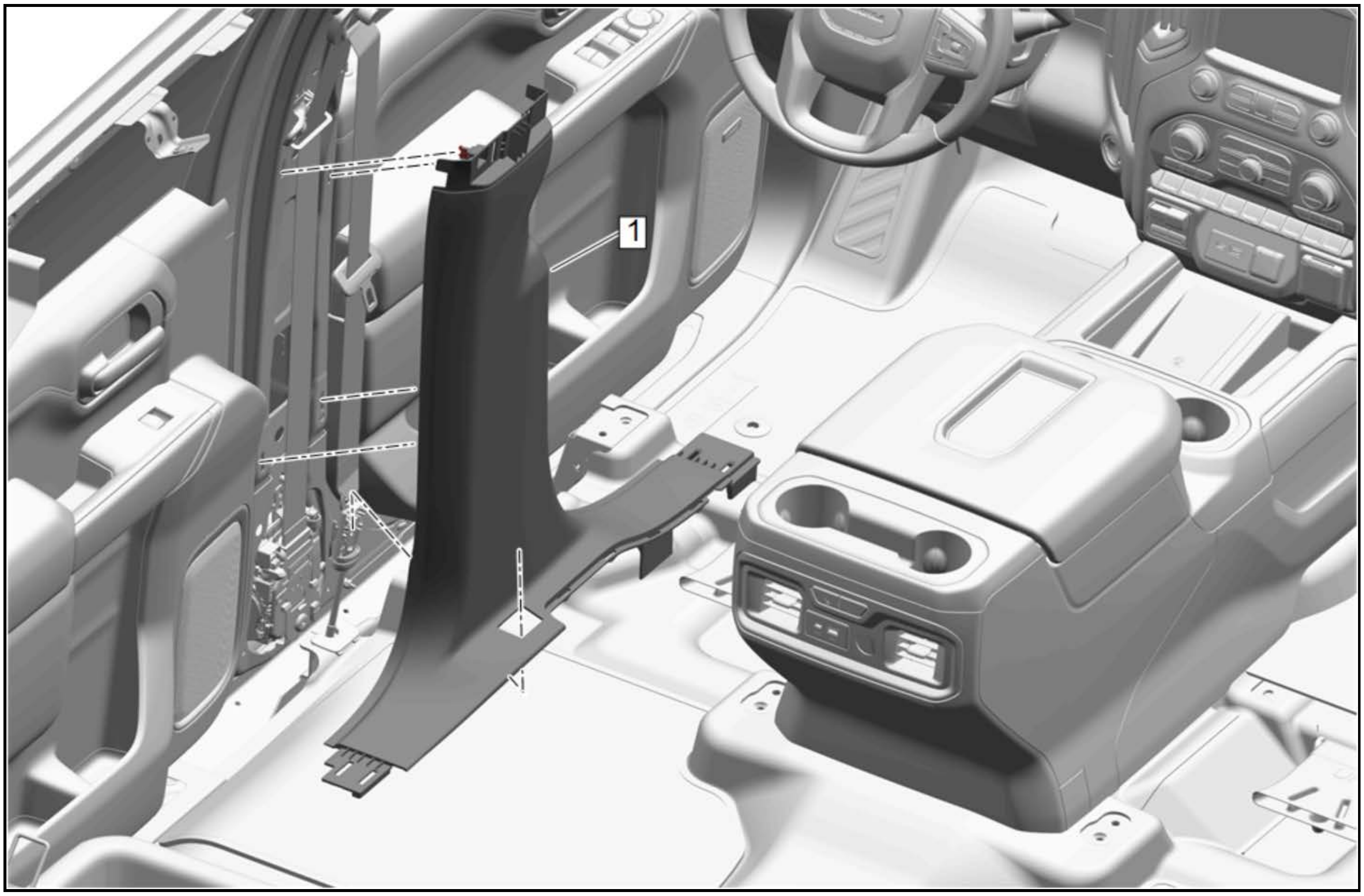
10. Front Seat Belt Anchor Plate Tensioner Cover (1) » Remove
11. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Remove



5904659

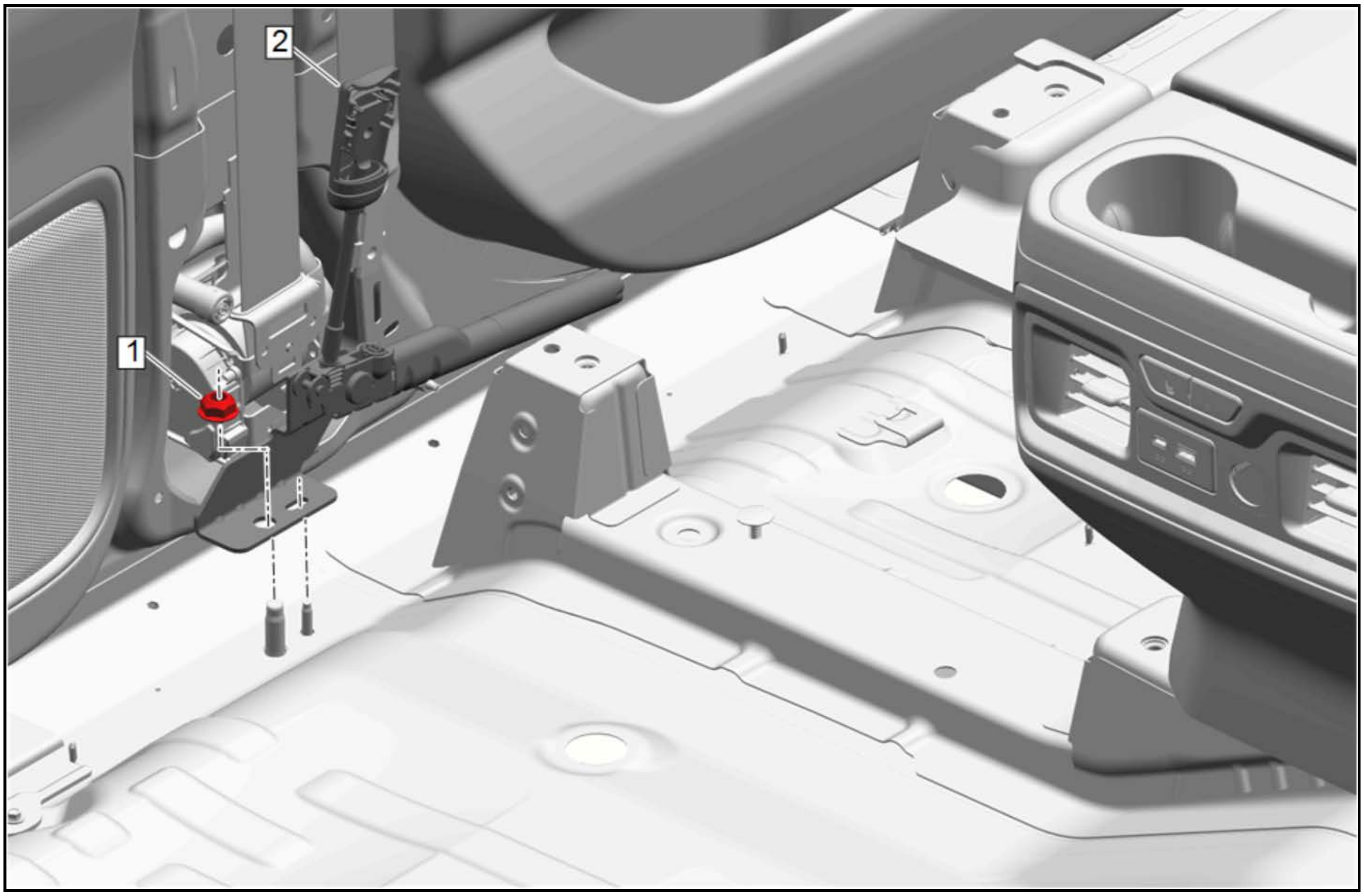
12. Use a small flat - bladed tool to open the bolt caps (1) and gain access to the bolts.
13. Center Pillar Upper Trim Panel Bolt Cap (1) » Remove
14. Center Pillar Upper Garnish Molding Bolt (2) » Remove
15. Pull the Center Pillar Upper Trim Panel (3) toward the inside of the vehicle to disengage the clips and retainers.

    Note: The Center Pillar Upper Trim Panel does not need to be fully removed from the vehicle.
16. Center Pillar Upper Trim Panel (3) » Reposition



5001632

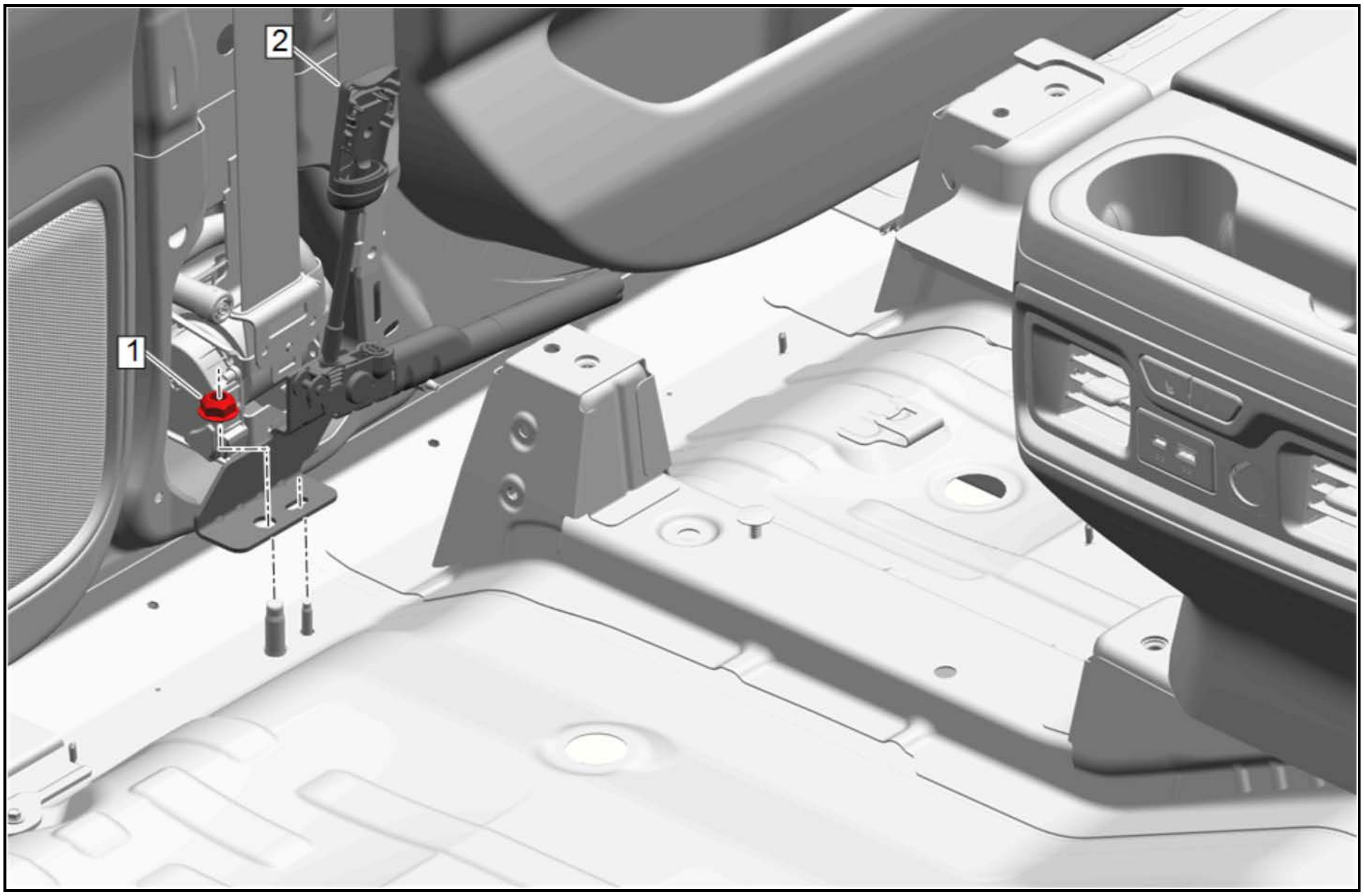
17. Remove the center pillar lower trim panel cover.
18. Pull the center pillar lower trim panel (1) inward and upward to disengage the retainers and to clear the front seat belt anchor plate tensioner.
19. Center Pillar Lower Trim Panel (1) » Remove



5035142

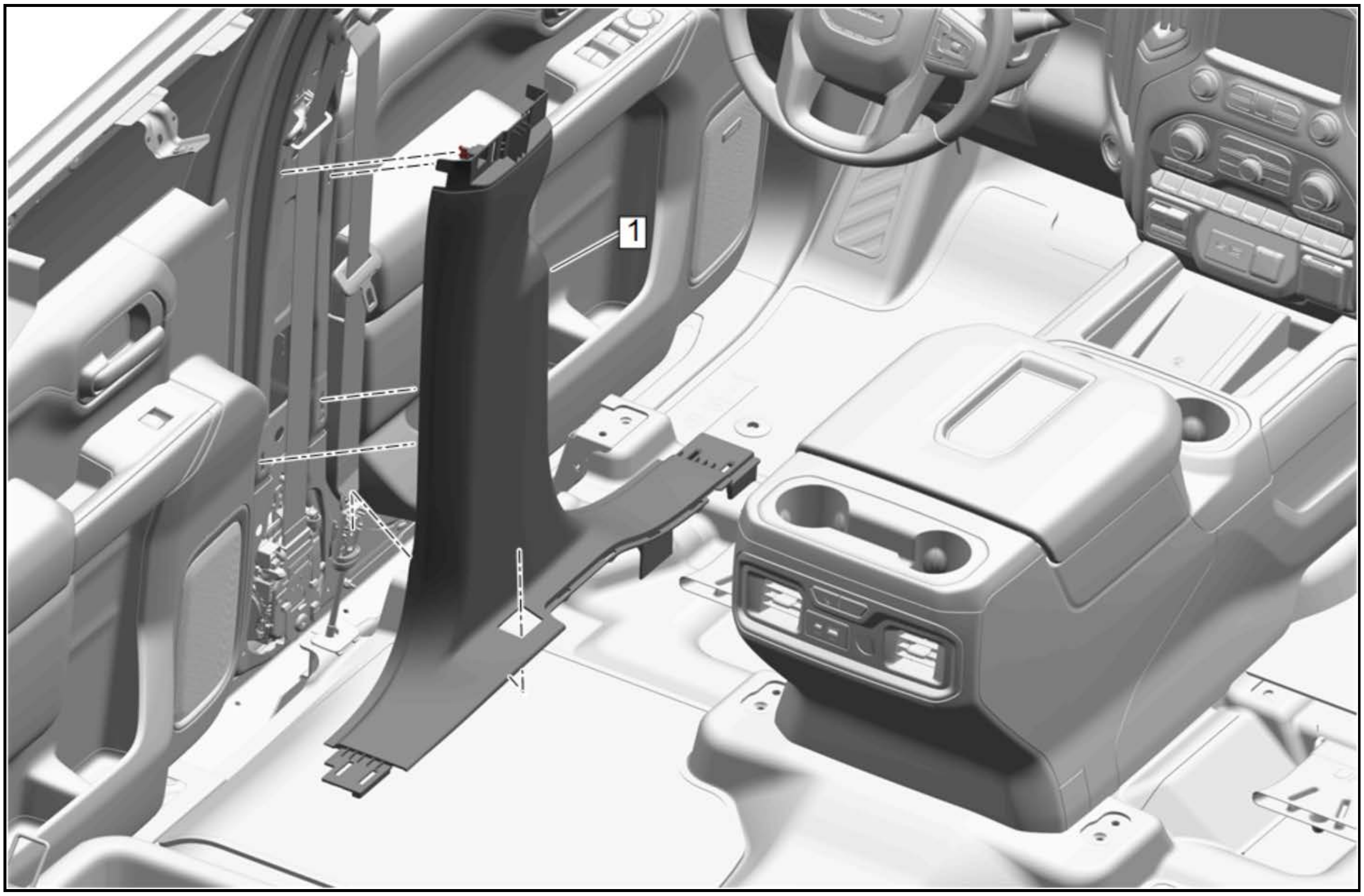
20. Disconnect the electrical connector.
21. Front Seat Belt Nut (1) » Remove
22. Front Seat Belt Anchor Plate Tensioner (2) » Remove

Installation Procedure

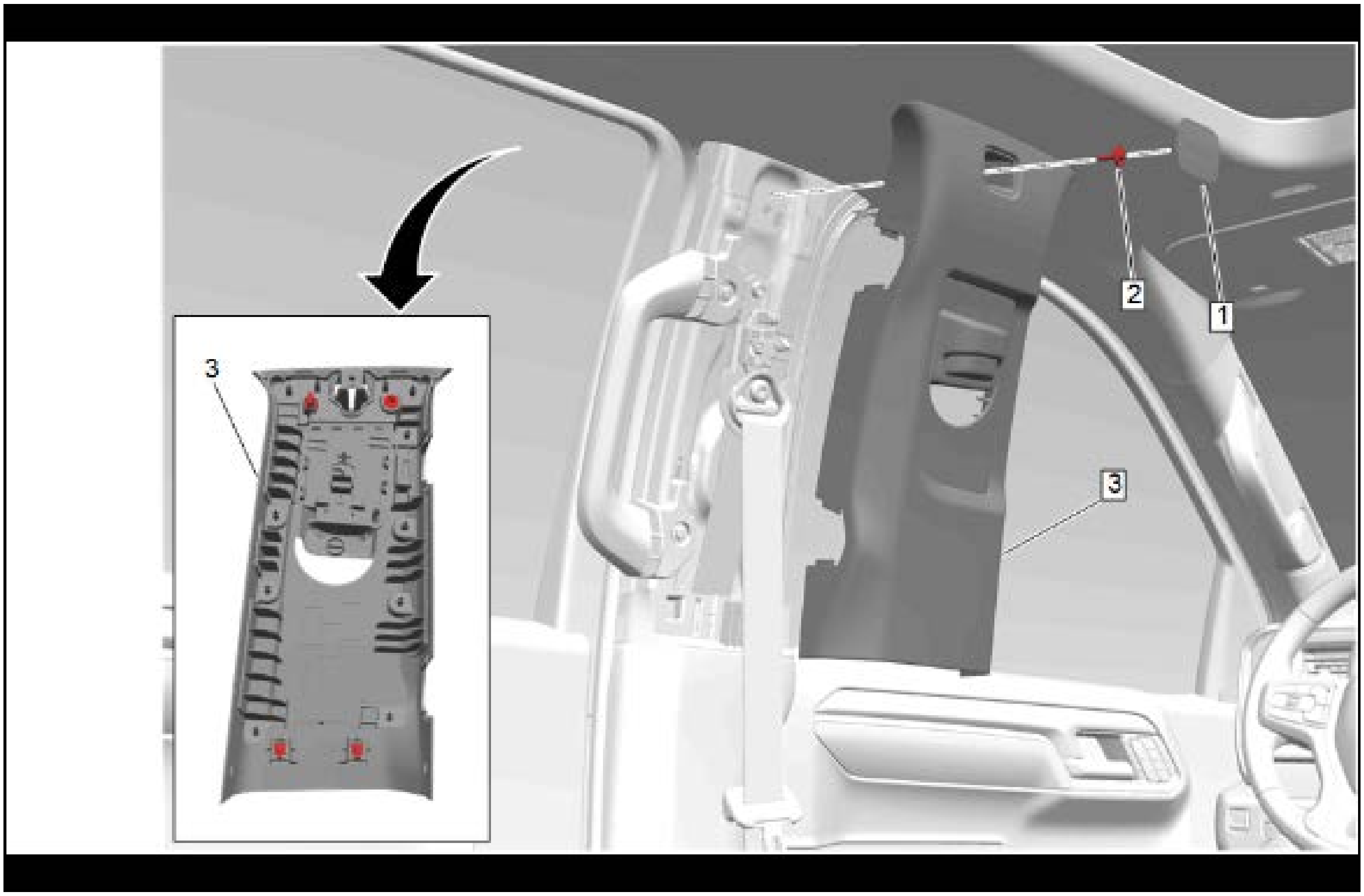


5035142

1. Front Seat Belt Anchor Plate Tensioner (2) » Install
2. Front Seat Belt Nut (1) » Install and tighten — *Fastener Specifications on page 8-427*
3. Connect the electrical connector.

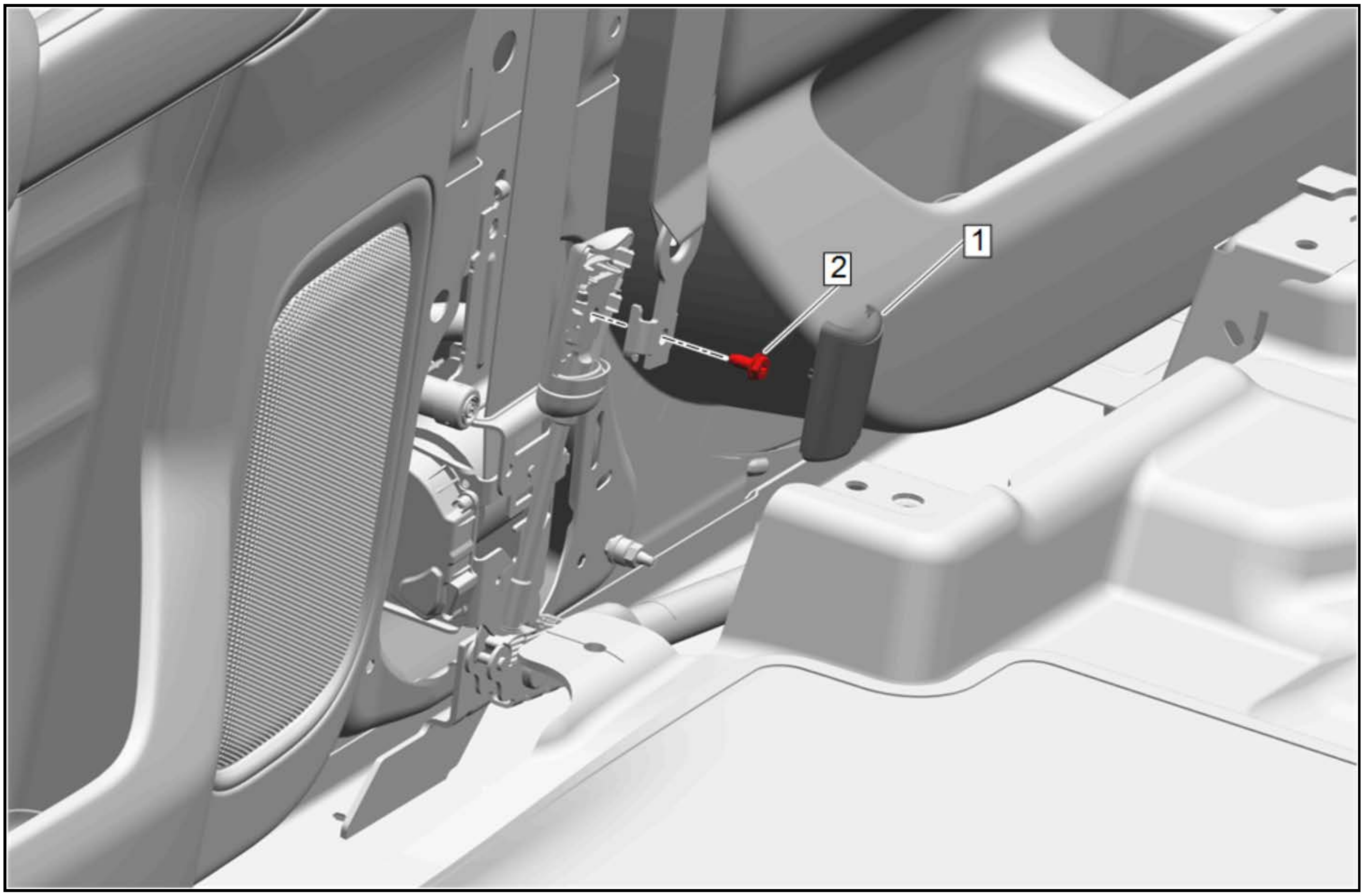


4. Feed the front seat belt anchor plate tensioner through the center pillar lower trim panel (1).
5. Ensure the seat belt webbing does not become trapped during installation.
6. Center Pillar Lower Trim Panel (1) » Install



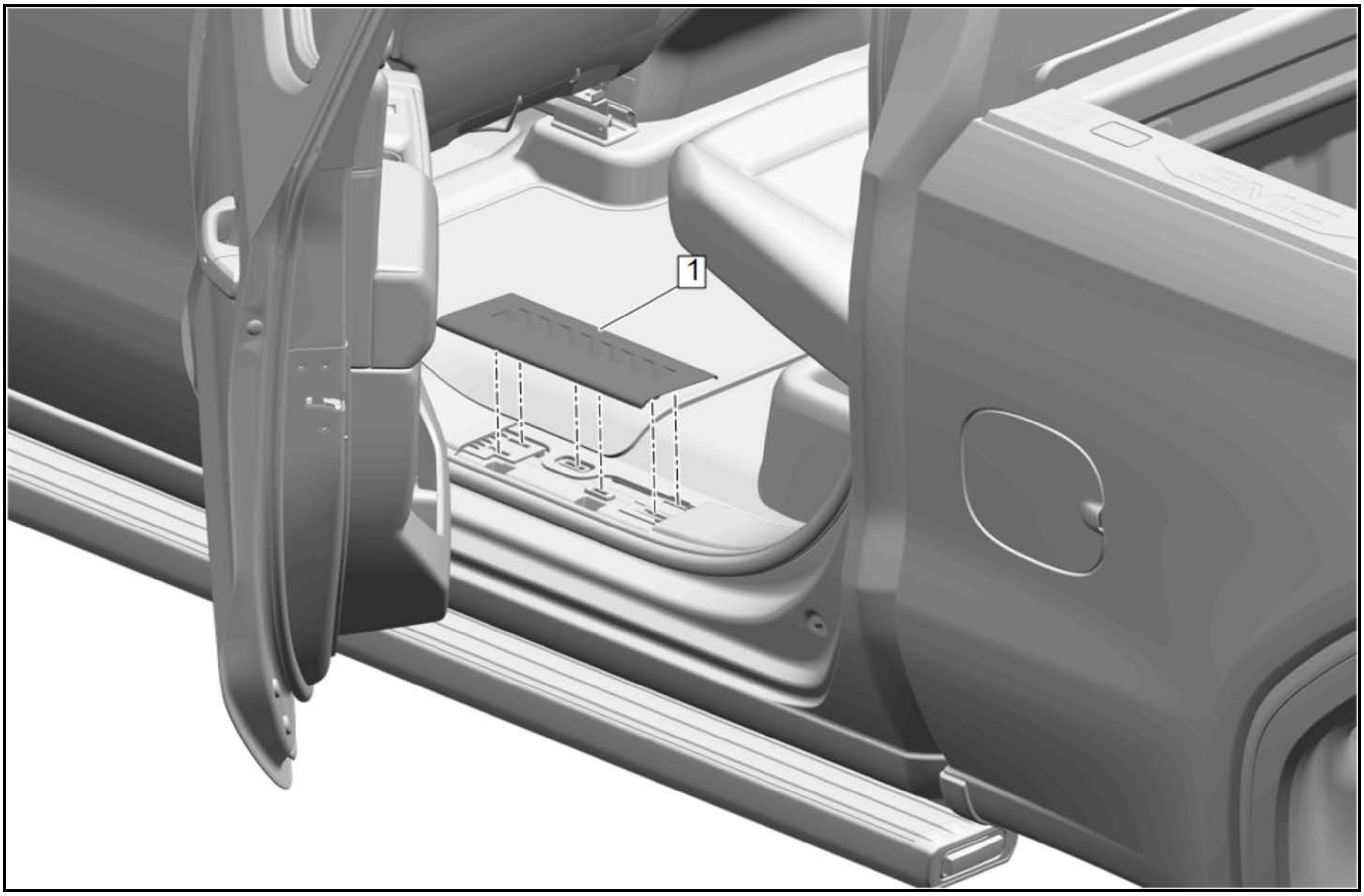
5904659

7. Center Pillar Upper Trim Panel (3) » Install
8. Center Pillar Upper Garnish Molding Bolt (2) » Install and tighten
9. Center Pillar Upper Trim Panel Bolt Cap (1) » Install



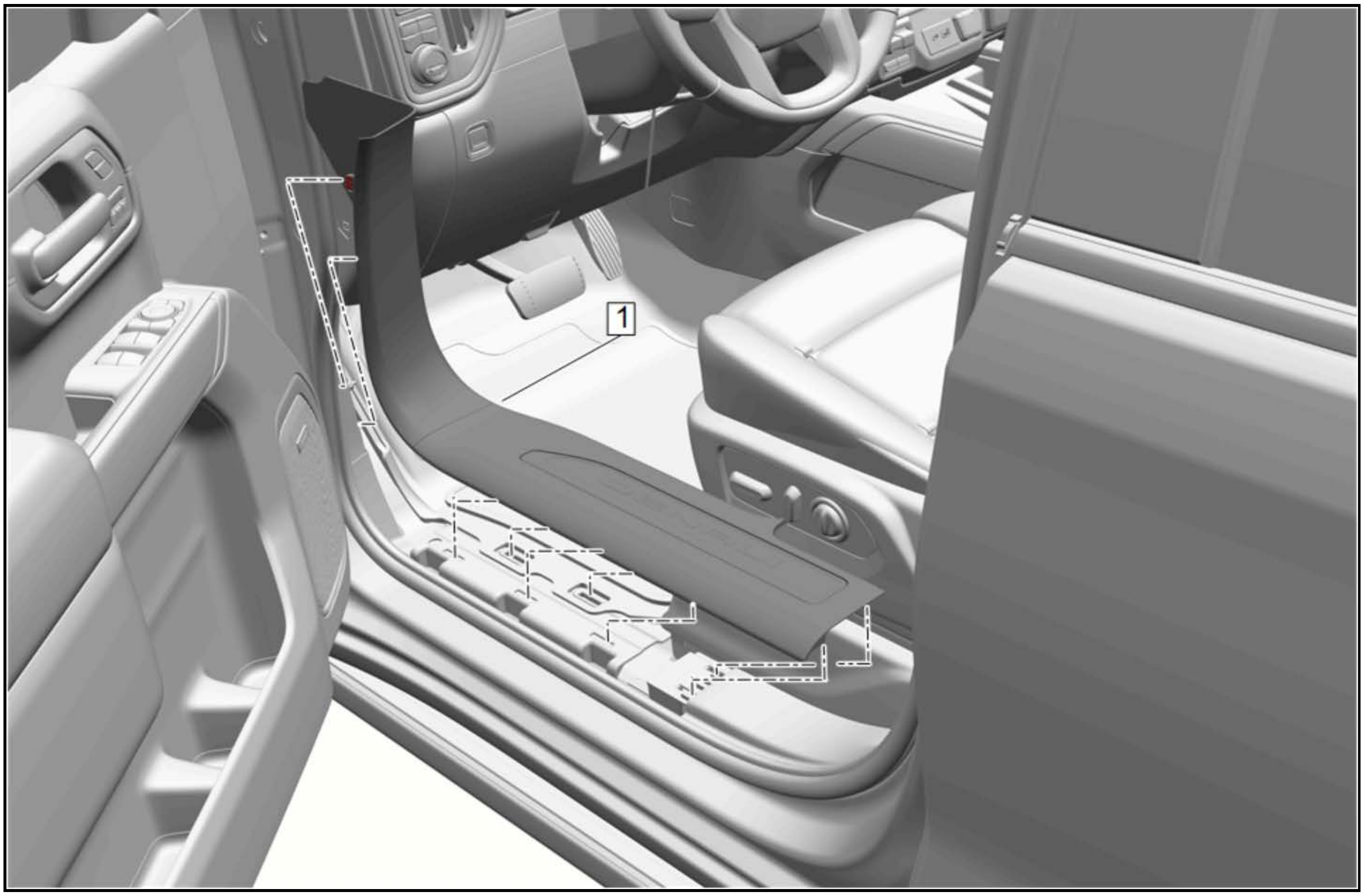
5035139

10. If a NEW threaded component is being installed, loosen the adhesive using a metal pick or similar tool before proceeding. If threaded component is reused, prepare the threaded component using the following steps:
    10.1. Remove any loose cured adhesive from the external threads of the component using a lint free cloth.
    10.2. Thread the cleaned component into the internal mating threads and remove to loosen trapped cured adhesive.
    10.3. Apply thread locking adhesive to the external threads of the component. *Adhesives, Fluids, Lubricants, and Sealers on page 8-432*
    10.4. Ensure there are no gaps in the thread locking adhesive once applied to the component.
11. Front Seat Belt Anchor Plate Tensioner Bolt (2) » Install and tighten — *Fastener Specifications on page 8-427*
12. Front Seat Belt Anchor Plate Tensioner Cover (1) » Install

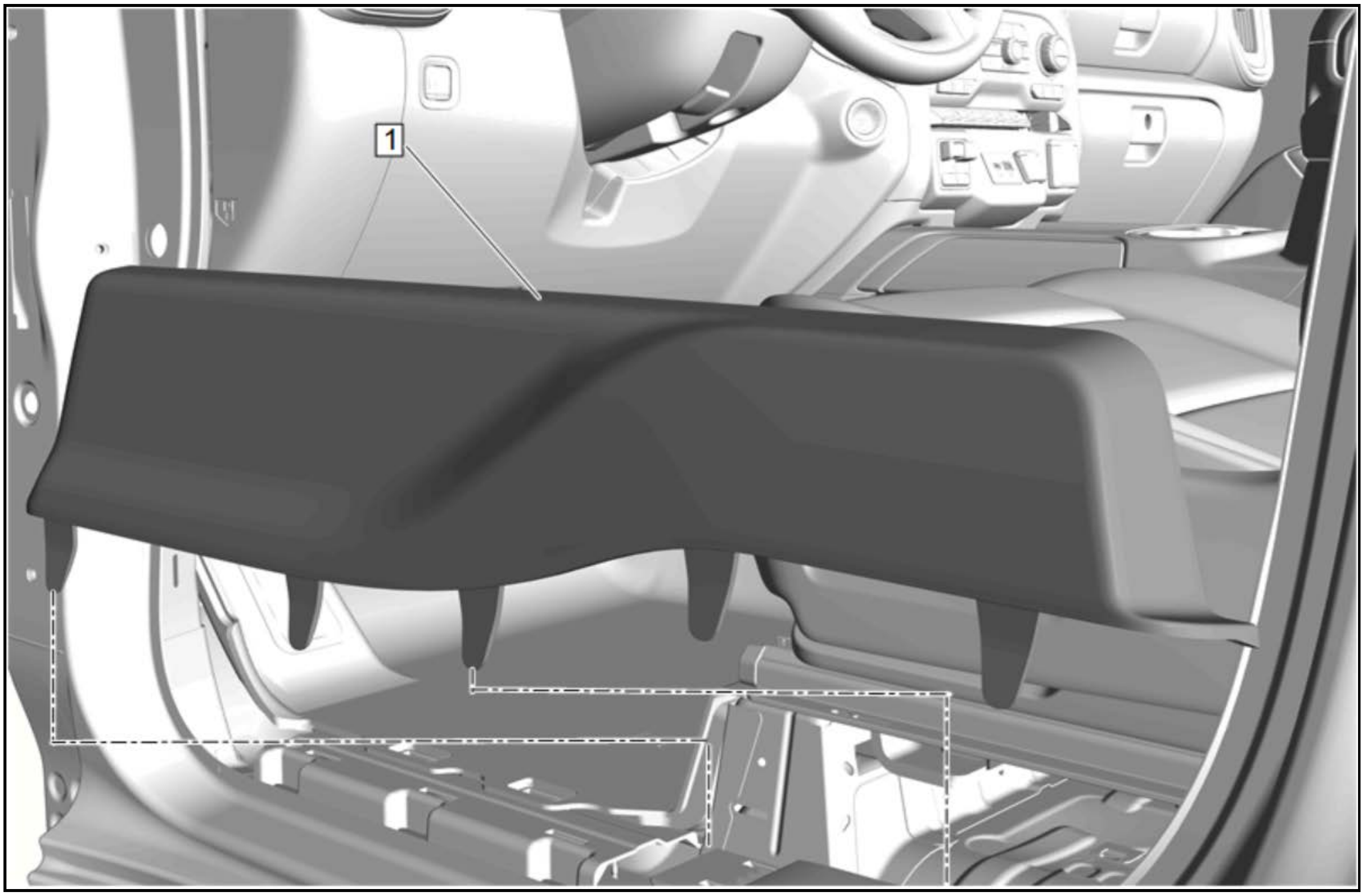


5001935

13. Rear Side Door Sill Garnish Molding (1) » Install



14. Starting at the front of the front side door sill garnish molding (1) engage the 2 retaining clips on the forward vertical wall.
15. Work your way rearward engaging the front side door sill garnish molding retaining clips.
16. Front Side Door Sill Garnish Molding (1) » Install



17. Front Seat Adjuster Track Finish Cover (1) » Install

18. Enable the SIR System. SIR Disabling and Enabling on page 8-481

Object-ID=5807146 Owner=Schaller, Dawn LMD=20-May-2021 LMB=Havens, Greg

Repairs and Inspections Required After a Collision

Warning: SIO-ID=2051007 LMD=23-Jan-2008 ***Proper operation of the Supplemental Inflatable Restraint (SIR) sensing system requires that any repairs to the vehicle structure return the vehicle structure to the original production configuration. Not properly repairing the vehicle structure could cause non-deployment of the air bag(s) in a frontal collision or deployment of the air bag(s) for conditions less severe than intended.***

Warning: SIO-ID=2277392 LMD=13-May-2009 ***Do not repair or replace the seat stitching or seams in the seat back trim cover with an internal mounted seat side airbag module. Replace the complete seat back trim cover from the OEM. Non-OEM seat stitching may cause improper airbag deployment which could result in personal injury.***

Note: General Motors (GM) vehicles, systems and components are engineered, tested and manufactured to protect vehicle occupants based upon both government mandated and internal corporate requirements relative to durability, NVH (noise/ vibration/harshness), occupant protection, and vehicle safety. Only authentic Genuine GM Parts are designed, engineered, manufactured and tested to the General Motors internal and government mandated standards and are the only ones equivalent to the original equipment installed on the vehicle.

1. After ANY collision, perform the following belt operational and functional checks:
   - Turn the ignition switch to the ON position. Verify proper operation of the seat belt reminder lamp with the belt buckled and with the belt unbuckled.
   - For each seating position:
     1. Inspect the shoulder belt guide to ensure that the seat belt webbing is seated flat in the guide slot and that the seat belt webbing does not bind.
     2. Verify that the seat belt buckle is accessible.
     3. Fully extend the seat belt webbing. Verify that the seat belt webbing does not have any twists or tears.
     4. Allow the seat belt webbing to retract. Verify that the seat belt webbing returns freely and completely back into the retractor.
     5. Snap the seat belt latch plate into the buckle. Sharply tug on the seat belt latch plate and the buckle. Verify that the seat belt latch plate and the buckle remain locked when tugged.
     6. Push the button on the buckle. Verify the seat belt latch plate releases easily from the buckle and the button returns to its original position.
2. In instances of vehicle collision where damage is limited to minor outer body panel cosmetic distortion: visually inspect vehicle for extent of damage, repair and replace components as necessary.
3. In instances of vehicle collision where damage exceeds minor outer body panel cosmetic distortion, unrelated components can be subject to damage outside of obvious visual detection method in the area of impact. The table below references components requiring inspection or replacement to promote a safe and quality repair. Some inspections may require disassembly of vehicle components or additional functional tests. If you detect any damage, replace the component.

Component	Notes or Additional Instructions	Exceeds Minor Outer Body Panel Cosmetic Distortion without Airbag Deployment	Pretensioner Deployment	Seat Side Airbag Deployment	Frontal Airbag Deployment
Brakes & Steering					
Brake Pedal	—	Inspect	Inspect	Inspect	Inspect
Steering Column	Refer to Steering Column Accident Damage Inspection in Steering Column and Wheel.	Inspect	Inspect	Replace	Replace
Steering Wheel	—	Inspect	Inspect	Replace	Replace
Steering Wheel Airbag	If not deployed, visually inspection the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if found.	Inspect	Inspect	Inspect	Replace
Steering Wheel Air Bag Coil and Coil Wiring Pigtail	If deployed, inspect for melting, scorching, or other damage due to excessive heat.	—	—	—	Inspect
Steering Wheel Air Bag Mounting Points and Hardware	—	—	—	—	Inspect

Repairs and Inspections Required After a Collision (cont'd)

Impact Sensors					
Front and/or Side Impact Sensors	Impact Sensor Replacement Guidelines: • The impact sensor replacement policy requires replacing sensors in the area of the accident damage. The area of accident damage is defined as the portion of the vehicle which is crushed, bent, or damaged due to a collision. If the impact sensor or the mounting structure of the impact sensor is damaged, the impact sensor must be replaced. • Replace the impact sensor whether or not the air bags have deployed. • Replace the impact sensor even if it appears to be undamaged. • Impact sensor damage which is not visible, such as slight bending of the mounting bracket or cuts in the wire insulation, can cause improper operation of the SIR system. Do not try to determine whether the impact sensor is undamaged, replace the impact sensor. Also, if you follow a diagnostic trouble code (DTC) procedure and a malfunctioning impact sensor is indicated, replace the impact sensor.	Replace	Replace	Replace	Replace
Impact Sensors Mounting Points and Hardware	—	Inspect	Inspect	Inspect	Inspect
Instrument Panel					
Instrument Panel Cross Car Beam	—	Inspect	Inspect	Inspect	Inspect
Instrument Panel Knee Bolsters and Mounting Points	—	Inspect	Inspect	Inspect	Inspect
Instrument Panel Mounting Points and Instrument Panel Brackets, Braces, etc.	—	Inspect	Inspect	Inspect	Inspect
Instrument Panel Air Bag Mounting Points and Hardware	—	Inspect	Inspect	Inspect	Inspect
Instrument Panel Airbag	Visually inspection the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if deformation, distortion, or indentations are found.	Inspect	Inspect	Inspect	Replace

Repairs and Inspections Required After a Collision (cont'd)

Knee Airbag	Visually inspection the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if deformation, distortion, or indentations are found.	Inspect	Inspect	Inspect	Replace
Roof and Interior Trim					
Roof and Headliner Mounting Points	—	Inspect	Inspect	Inspect	Inspect
Door trim assembly	On Side of Impact. Visually inspect door trim assembly for deformation or distortion as a result of damage. Replace if deformation or distortion is found.	Inspect	Inspect	Inspect	—
Trim Mounting Points and Hardware	On Side of Impact	—	Inspect	Inspect	—
Roof Rail Airbag Mounting Points and Hardware	On Side of Impact	—	Inspect	Inspect	—
Roof Rail Airbag	On Side of Impact. If not deployed, visually inspect roof trim for deformation or distortion as a result of damage. Replace if found.	Inspect	Inspect	Replace	—
Seats					
Seats and Seat Mounting Points	—	Inspect	Inspect	Inspect	Inspect
Seat Back Cover	If Side Air Bag(s) Deployed. If not deployed, visually inspect seat back cover and top trim cover of the airbag modules for deformation or distortion as a result of damage. Replace if deformation or distortion is found.	Inspect	Inspect	Replace	Inspect
Seat Side Air Bag	If Deployed	—	—	Replace	Replace
Seat Side Air Bag Mounting Points and Hardware	If Side Air Bag(s) Deployed	—	—	Inspect	Inspect
Seat Adjuster	—	—	—	Inspect	—
Seat Back Frame	—	—	—	Inspect	—
Seat Cushion Frame	—	—	—	Inspect	—
Seat Cushion Side Covers and Switches	On Side of Impact	—	—	Inspect	—
Seat Recliner and Cover	If Equipped	—	—	Inspect	—

Repairs and Inspections Required After a Collision (cont'd)

Seat Belts					
Seat Belt System	This applies to seat belt systems in use by people of adult size, seat belt systems used to secure child restraints, infant carriers, and booster seats, including LATCH system and top tether anchorages. **Do NOT replace single seat belt system components in vehicles that have been in a collision as described above. Always replace the entire seat belt system with the buckle, guide, and retractor assembly, which includes the latch and webbing material.** 1. Replace any seat belt system that was in use during the collision serious enough to deploy any automatic restraint device such as air bags and seat belt pretensioners. 2. Replace any seat belt system that has torn, worn, or damaged components. 3. Replace any seat belt system if you observe the words "REPLACE" or "CAUTION", or if a yellow tag is visible. Do not replace a seat belt if only the child seat caution label is visible. 4. Replace any seat belt system if you are doubtful about its condition.	Inspect	—	—	—
Seat Belt Anchor and/or Retractor Pretensioners	—	Inspect	Replace	Replace	Replace
Seat Belt Anchor and/or Retractor Pretensioners Mounting Points and Hardware	Visually verify the seat belt retractor units are securely attached and the seat belt anchor bolts are secure.	Inspect	Inspect	Inspect	Inspect
Sensing and Diagnostic Module (SDM)					
Inflatable Restraint Sensing and Diagnostic Module (SDM) or Restraints Control Module (RCM)	Replace only if module has set DTC B0052 (or other related SDM DTCs) or DTC B1A33 (or other related RCM DTCs) and will not clear.	—	Replace	Replace	Replace
Inflatable Restraint Sensing and Diagnostic Module (SDM) or Restraints Control Module (RCM) Mounting Points and Hardware	—	—	Inspect	Inspect	Inspect

Inflatable Restraint Module Handling and Scrapping

Object-ID=5362575 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

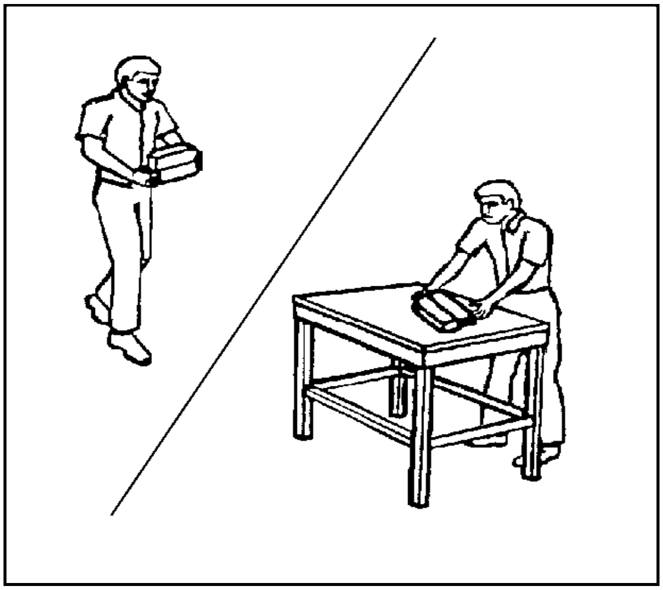
Special Tools

- *EL-38826* SIR Deployment Harness
- *EL-38826–200* SIR Deployment Harness Jumper
- *EL-39401-B* SIR Deployment Fixture

For equivalent regional tools, refer to Special Tools on page 8-683.

Live and Undeployed Inflator Module

Warning: SIO-ID=2051416 LMD=23-Jan-2008 ***A deployed dual stage inflator module will look the same whether one or both stages were used. Always assume a deployed dual stage inflator module has an active stage 2. Improper handling or servicing can activate the inflator module and cause personal injury.***



9039

Take special care when handling or storing an undeployed inflator module. An inflator module deployment produces a rapid generation of gas. This may cause the inflator module, or an object in front of the inflator module, to project through the air in the event of an unlikely deployment.

Dual Stage Inflator Module

Dual stage inflator modules have 2 deployment stages. If stage 1 was used to deploy a dual stage inflator module, stage 2 may still be active. Therefore, a deployed dual stage inflator module must be treated as an active module. If disposal of a dual stage module is required, both deployment loops must be energized to deploy the air bag.

Scrapping Procedure

During the course of a vehicles useful life, certain situations may arise which will require the disposal of a live and undeployed inflator module. Do NOT dispose a live and undeployed inflator module through normal disposal channels until the inflator module has been deployed.

Do not deploy the inflator module in the following situations:

- After replacement of an inflator module under warranty—the inflator module may need to be returned undeployed to the manufacturer.
- If the vehicle is the subject of a Product Liability report, GM-1241, related to the SIR system and is subject to a preliminary investigation—do NOT alter the SIR system in any manner.
- If the vehicle is involved in a campaign affecting the inflator modules—follow the instructions in the Campaign Service Bulletin for proper SIR handling procedures.

Deployment Procedures

Note: All Users must comply with all International, Federal, State, Provincial, and/or Local laws applicable to the activities it performs, including but not limited to handling, deploying, preparing, classifying, packaging, marking, labeling, and shipping dangerous goods. In the event of a conflict between the procedures set forth in any service manual and the laws that apply to you, you must follow those applicable laws.

You can deploy the inflator module either inside or outside of the vehicle. The method used depends upon the final disposition of the vehicle. Review the following procedures in order to determine which will work best in a given situation:

Deployment Outside Vehicle – Steering Wheel Module, I/P Module, and Roof Rail Module

Deploy the inflator module outside of the vehicle when the vehicle will be returned to service. Situations that require deployment outside of the vehicle include the following:

- Using the SIR diagnostics, you determine that the inflator module is malfunctioning.
- The inflator module is cosmetically damaged, scratched, or ripped.
- The inflator module pigtail is damaged.
- The inflator module connector is damaged.
- The inflator module connector terminals are damaged.

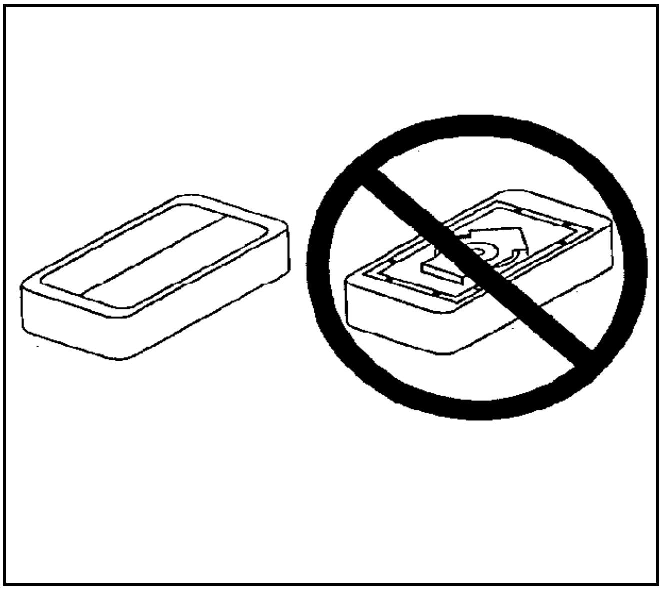
Deployment and disposal of a malfunctioning inflator module is subject to any required retention period.

Warning: SIO-ID=2051389 LMD=03-Sep-2015 ***In order to prevent accidental deployment and the risk of personal injury, do not dispose of an undeployed inflator module as normal shop waste. Undeployed inflator modules contain substances that could cause severe illness or personal injury if their sealed containers are damaged during disposal. Use the following deployment procedures to safely dispose of an undeployed inflator module. Failure to observe the following disposal methods may be a violation of appropriate country, regional or local laws.***

Special Tools

- *J 38826* SIR Deployment Harness
- *J 39401-B* SIR Deployment Fixture
- An appropriate pigtail adapter

1. Turn OFF the ignition.
2. Remove the ignition key.
3. Disconnect negative battery terminal. Refer to: *SIR Disabling and Enabling on page 8-481*
4. Put on safety glasses and hearing protection.
5. Remove the inflator module. Refer to the relevant airbag replacement procedure.

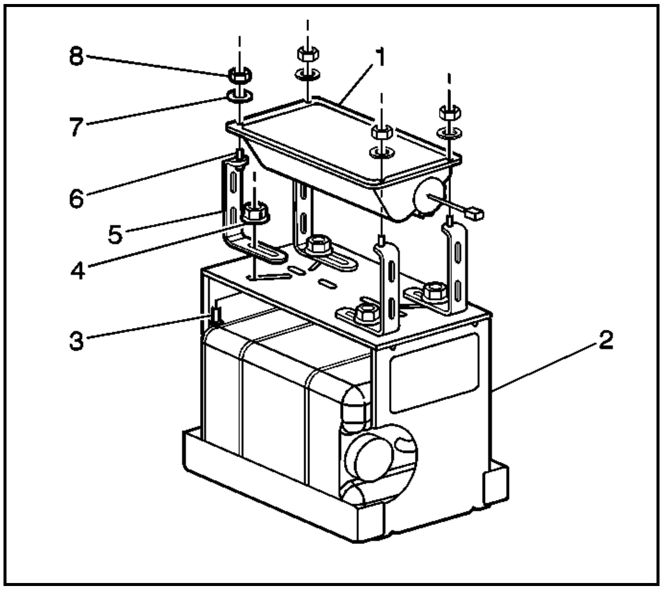


9427

Warning: SIO-ID=2051416 LMD=23-Jan-2008 ***A deployed dual stage inflator module will look the same whether one or both stages were used. Always assume a deployed dual stage inflator module has an active stage 2. Improper handling or servicing can activate the inflator module and cause personal injury.***

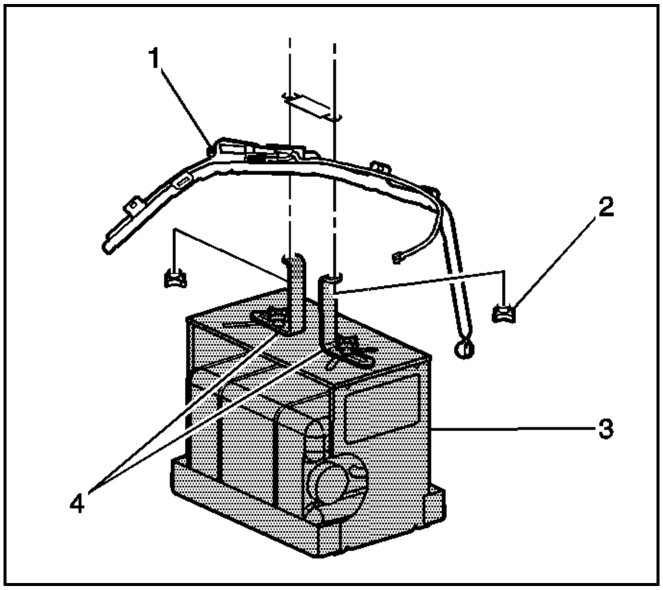
6. Place the inflator module on a work bench, with the vinyl trim cover facing up and away from the surface.
7. Clear a space on the ground about 4 m (13.1 ft) in diameter for deployment of the inflator module or deployment fixture. If possible, use a paved, outdoor location free of activity. Otherwise, use a space free of activity on the shop floor. Ensure you have sufficient ventilation.
8. Clear the area of loose or flammable objects.

   Note: Dual stage deployments are only used in steering wheel and I/P inflator modules. If stage 1 was used to deploy a dual stage inflator module, stage 2 may still be active. If disposal of a dual stage module is required, both deployment loops must be energized to deploy the air bag.
9. If you are deploying a steering wheel inflator module, place the inflator module in the center of the space.



453892

10. When deploying an I/P inflator module, perform the following instructions:
    - 10.1. Place the *J 39401-B* SIR deployment fixture in the center of the cleared area.
    - 10.2. Fill the deployment fixture with water or sand.
    - 10.3. Using the proper nuts and bolts, mount the I/P module (1) to the deployment fixture (2), with the vinyl trim facing up.
    - 10.4. Securely tighten all fasteners that hold the I/P module (1) to the deployment fixture (2).

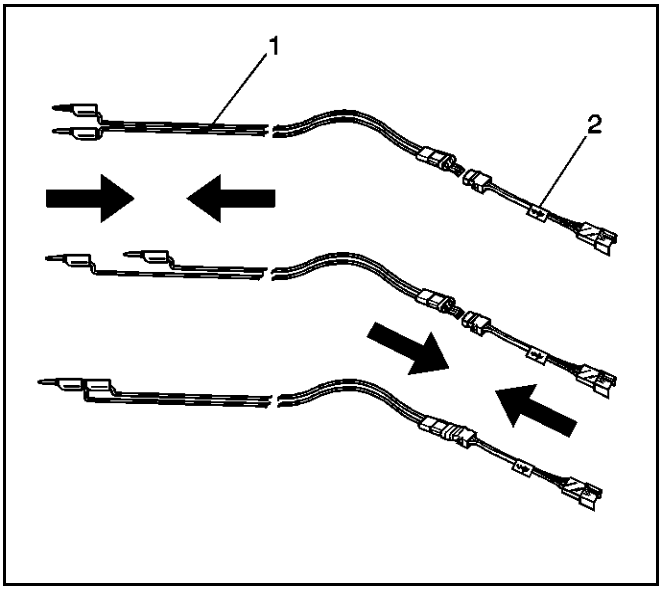


816848

11. When deploying a roof rail module, perform the following instructions:
    - 11.1. Place the *J 39401-B* SIR deployment fixture (3) in the center of the cleared area.
    - 11.2. Fill the deployment fixture with water or sand to provide sufficient stabilization of fixture during deployment.

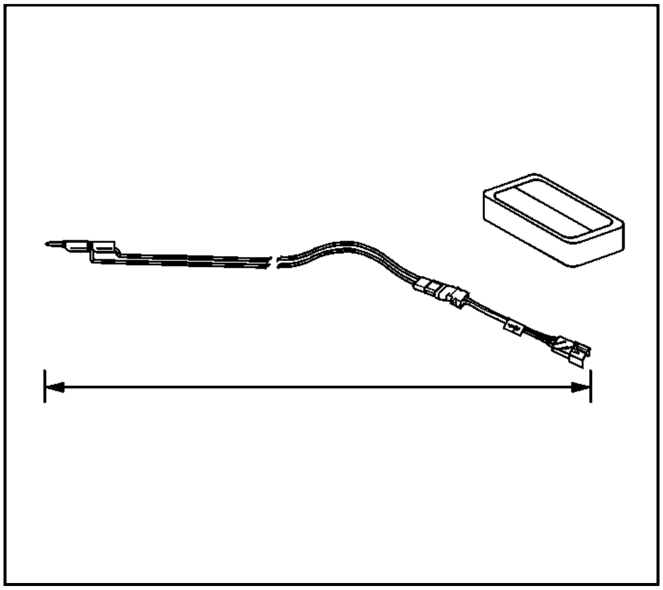
11.3. Adjust and secure the fixture arms (4) to the deployment fixture (3), using the proper nuts and bolts.

11.4. Attach the roof rail module in the deployment fixture and securely tighten all fasteners.



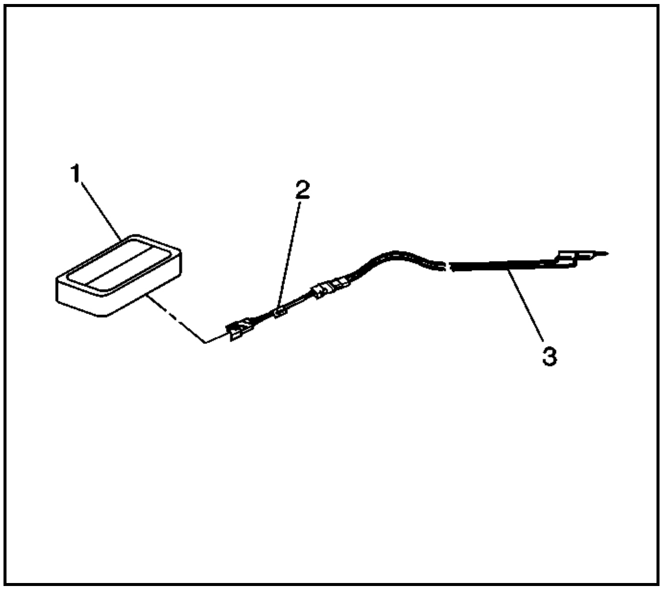
68645

12. Inspect the SIR deployment harness and the appropriate pigtail adapter (2) for damage. Replace as needed.
13. Short the 2 SIR deployment harness leads (1) together using one banana plug seated into the other.
14. Connect the appropriate pigtail adapter (2) to the SIR deployment harness (1).



68655

15. Extend the SIR deployment harness and adapter to the full length from the deployment fixture or area.



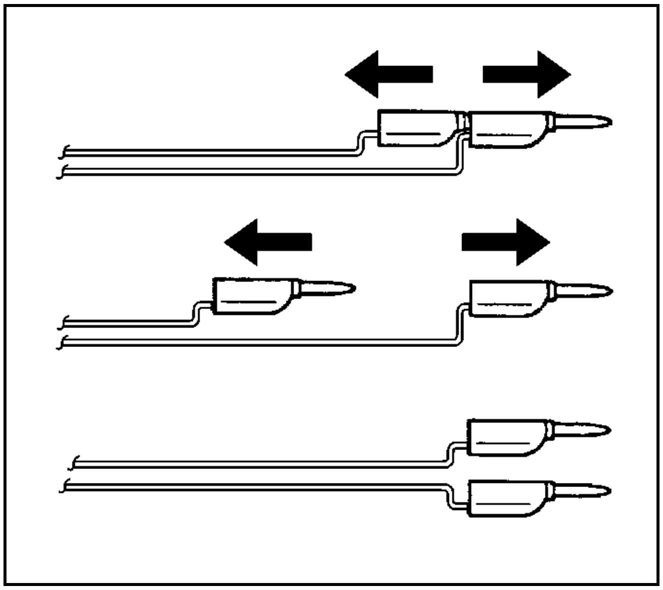
68656

Note: On a dual stage inflator module, both connectors must be attached to the deployment harness adapter. This will ensure that both stage 1 and stage 2 of the deployment loops are energized, regardless of the deployment state.

16. Connect the inflator module (1) to the adapter (2) on the SIR deployment harness (3).

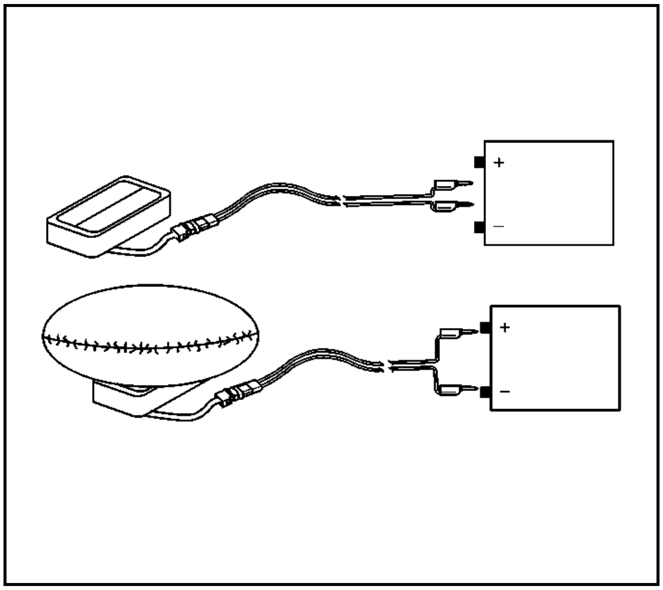
    Note:

    - The rapid expansion of gas involved with deploying an inflator module is very loud. Notify all the people in the immediate area that you intend to deploy the inflator module.
    - When the inflator module deploys, the deployment fixture may jump about 30 cm (1 ft) vertically. This is a normal reaction of the inflator module due to the force of the rapid expansion of gas inside the inflator module.
    - If you are deploying a dual stage inflator module with stage 1 already deployed, the fixture may not move and the noise may have been reduced.
17. Clear the area of people.



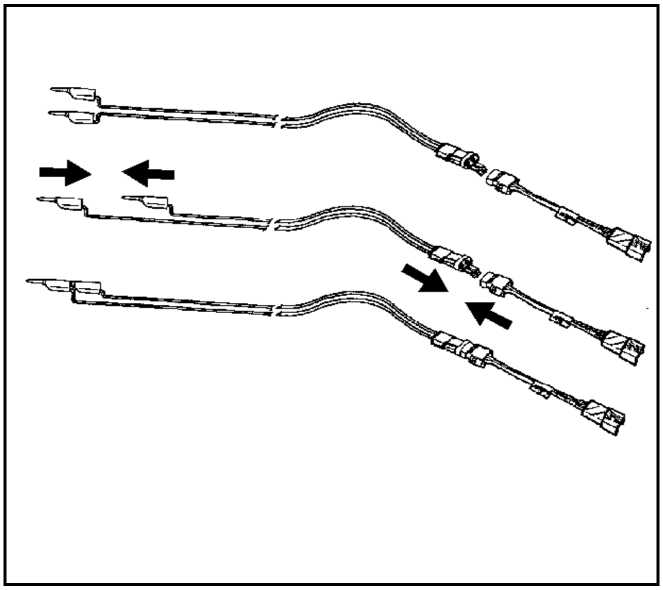
39382

18. Separate the 2 banana plugs on the SIR deployment harness that were shorted together earlier in the procedure.



39388

19. Place a 12-volt minimum/2-amp minimum power source, such as a vehicle battery, near the shorted end of the harness.
20. Connect the SIR deployment harness wires to the power source. Deployment of the inflator module will occur when contact is made.



9581

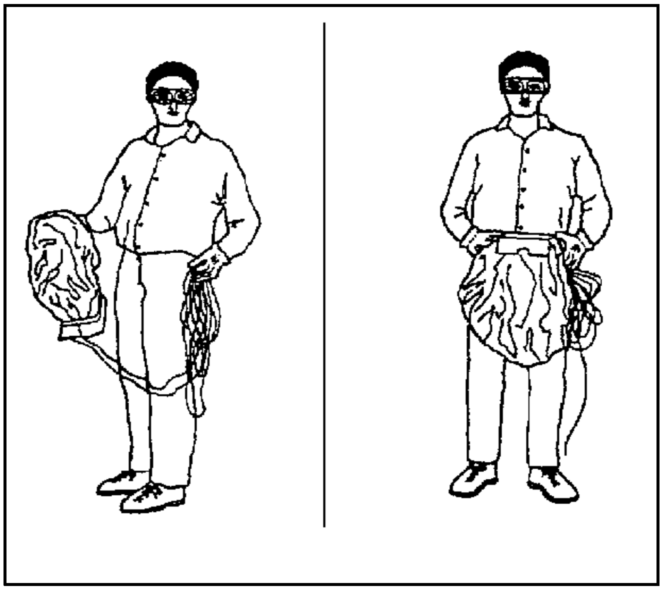
21. Disconnect the SIR deployment harness from the power source after the inflator module deploys.
22. If the inflator module did not deploy, disconnect the adapter and discontinue the procedure and contact the Technical Assistance Group.

    If deployment was successful, proceed to the following steps.

Warning: SIO-ID=2051392 LMD=23-Jan-2008 ***After deployment, the metal surfaces of the SIR component may be very hot. To help avoid a fire or personal injury:***

- ***Allow sufficient time for cooling before touching any metal surface of the SIR component.***
- ***Do not place the deployed SIR component near any flammable objects.***

23. Seat one banana plug into the other in order to short the deployment harness leads.



9433

24. Put on a pair of shop gloves.
25. Disconnect the pigtail adapter from the inflator module as soon as possible.
26. Inspect the pigtail adapter and the SIR deployment harness. Replace as needed.
27. Dispose of the deployed inflator module through normal refuse channels.
28. Wash your hands with a mild soap.

Deployment Inside Vehicle – Vehicle Scrapping Procedure

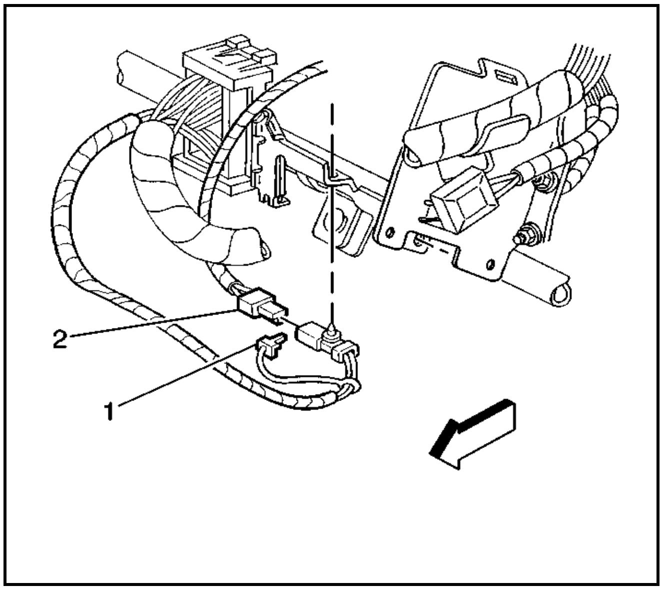
Deploy the inflator modules inside of the vehicle when destroying the vehicle or when salvaging the vehicle for parts. This includes, but is not limited to, the following situations:

- The vehicle has completed all useful life.
- Irreparable damage occurred to the vehicle in a non-deployment type accident.
- Irreparable damage occurred to the vehicle during a theft.
- The vehicle is being salvaged for parts to be used on a vehicle with a different VIN, as opposed to rebuilding as the same VIN.

Warning: SIO-ID=2051391 LMD=23-Jan-2008 ***When deploying a SIR component for disposal, perform the deployment procedures in the order listed. Failure to observe the procedures in the order listed may result in personal injury.***

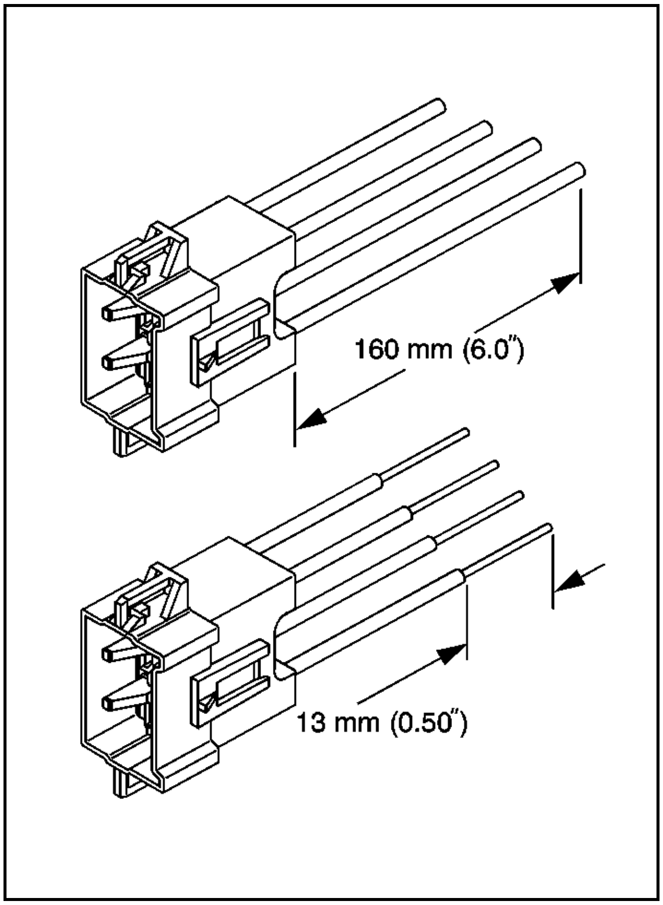
1. Lower the driver and passenger windows.
2. Turn the ignition switch to the OFF position and remove the ignition key.
3. Check that all inflator modules which will be deployed are mounted securely.
    - Driver inflator module is secured to the steering wheel.
    - Passenger inflator module is secured to the instrument panel.
    - Left roof rail inflator module is secured to the left roof rail.
    - Right roof rail inflator module is secured to the right roof rail.
4. Put on safety glasses and hearing protection.
5. Disconnect negative battery terminal. Refer to: *SIR Disabling and Enabling on page 8-481*
6. Remove all loose objects from the front seats.

Warning: SIO-ID=2051416 LMD=23-Jan-2008 ***A deployed dual stage inflator module will look the same whether one or both stages were used. Always assume a deployed dual stage inflator module has an active stage 2. Improper handling or servicing can activate the inflator module and cause personal injury.***



190000

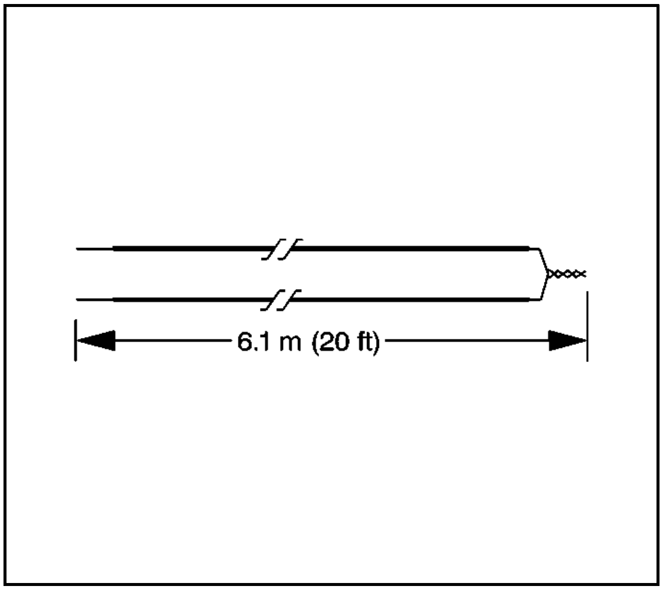
7. Disconnect the steering wheel module yellow connector (1) from vehicle harness yellow connector (2).



566915

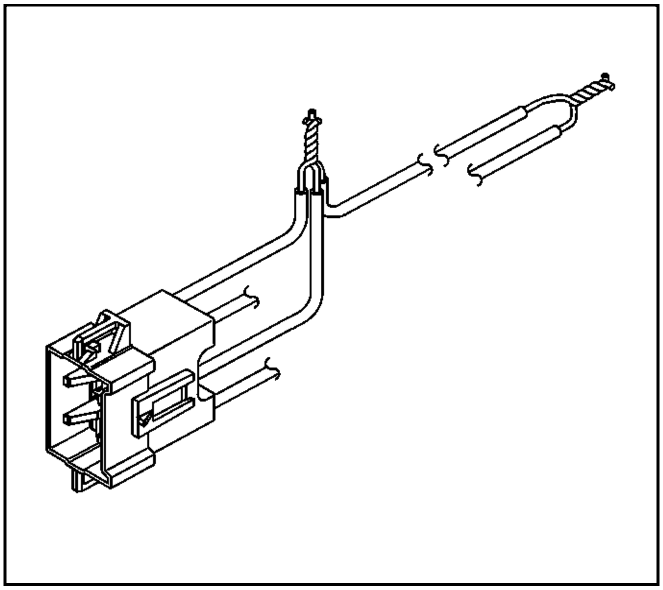
Note: If the vehicle is equipped with dual stage air bags the steering wheel module and I/P module will each have 4 wires. Refer to*Master Electrical Component List on page 7-853* for determining high and low circuits.

8. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
9. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.



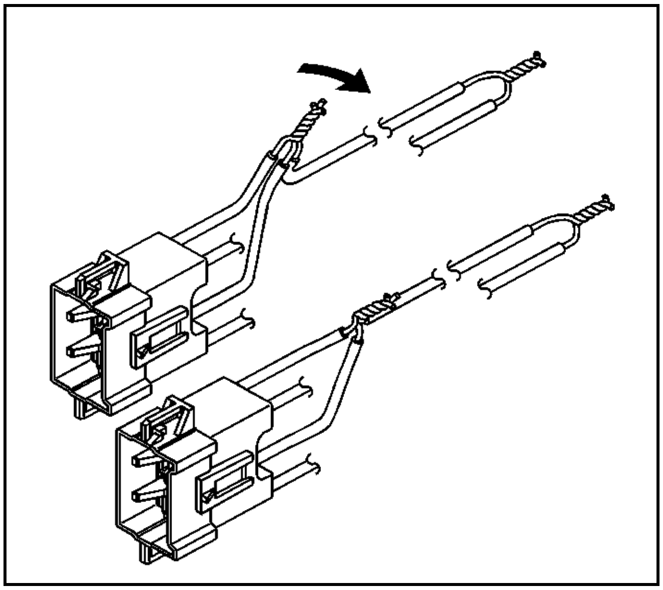
68651

10. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. Use these wires to fabricate the driver deployment harness.
11. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
12. Twist together one end from each of the wires in order to short the wires. Deployment wires shall remain shorted, and not connected to a power source until you are ready to deploy the inflator module.



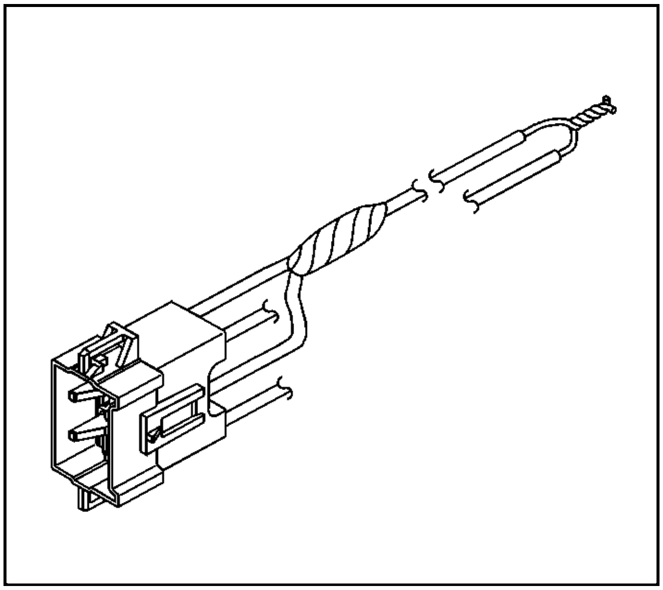
566918

13. Twist together the 2 connector wire leads from the high circuits from both stages of the steering wheel module, to one set of deployment wires. Refer to *Master Electrical Component List on page 7-853* in order to determine the correct circuits.
14. Inspect that the 3-wire connection is secure.



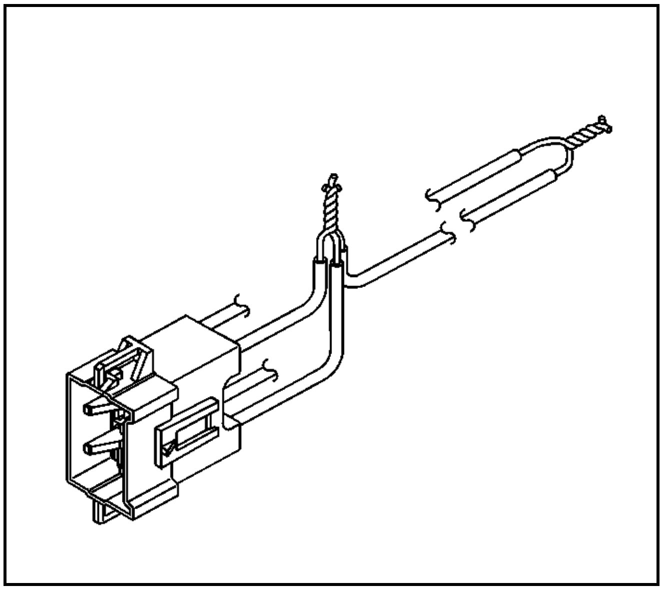
566922

15. Bend flat the twisted connection.



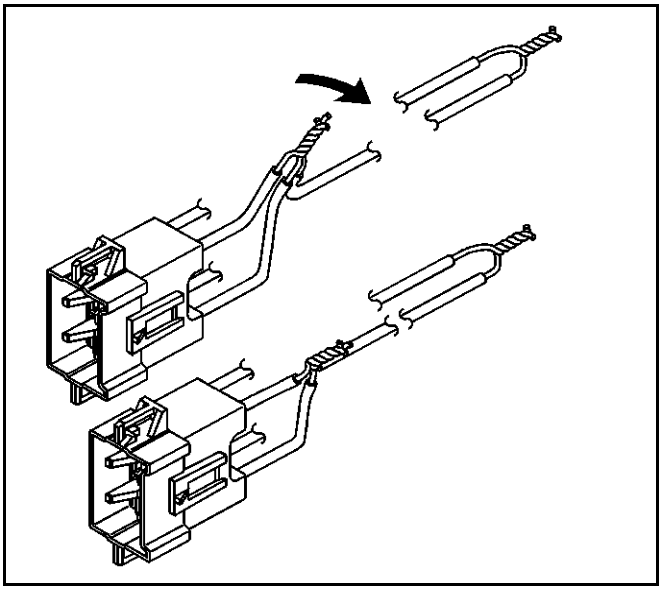
566927

16. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.



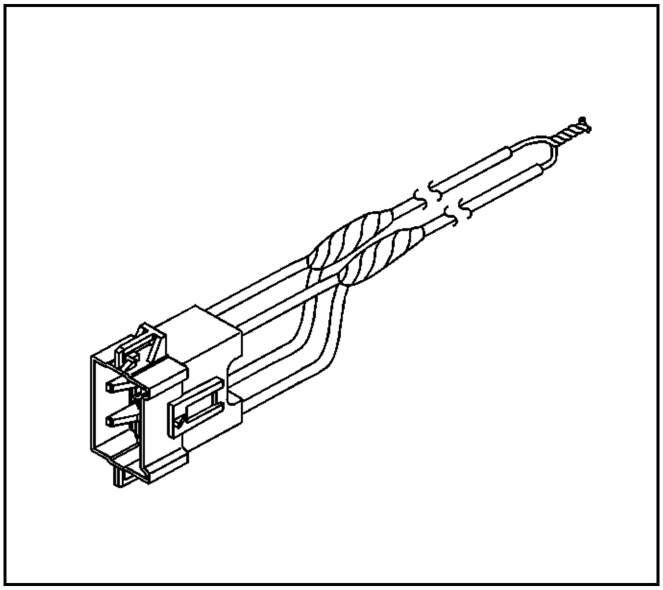
566932

17. Twist together the 2 connector wire leads from the low circuits from both stages of the steering wheel module, to one set of deployment wires. Refer to *Master Electrical Component List on page 7-853* in order to determine the correct circuits.
18. Inspect that the 3-wire connection is secure.



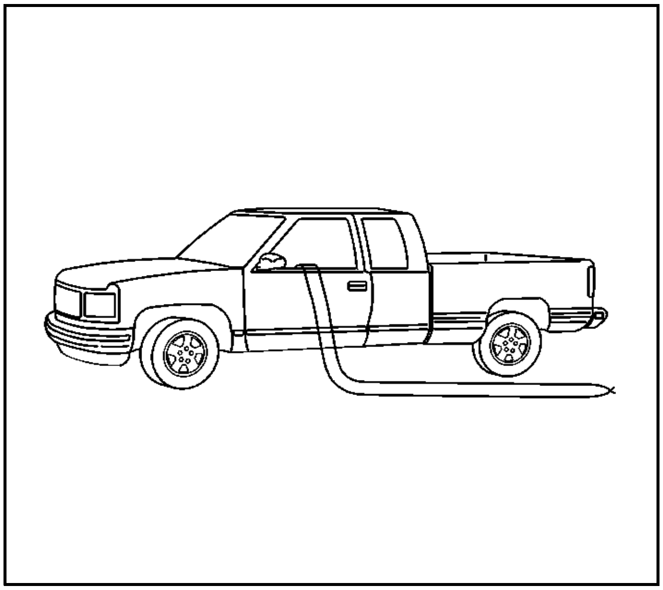
566936

19. Bend flat the twisted connection.



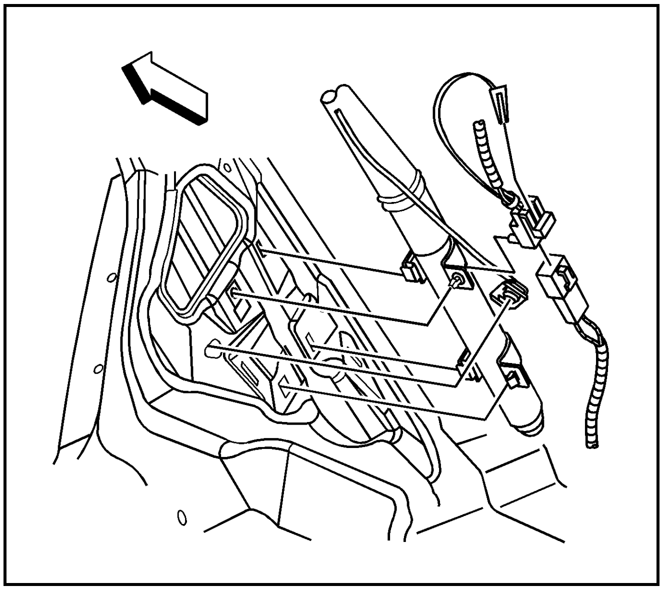
566942

20. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
21. Connect the deployment harness to the connector on the steering wheel module.



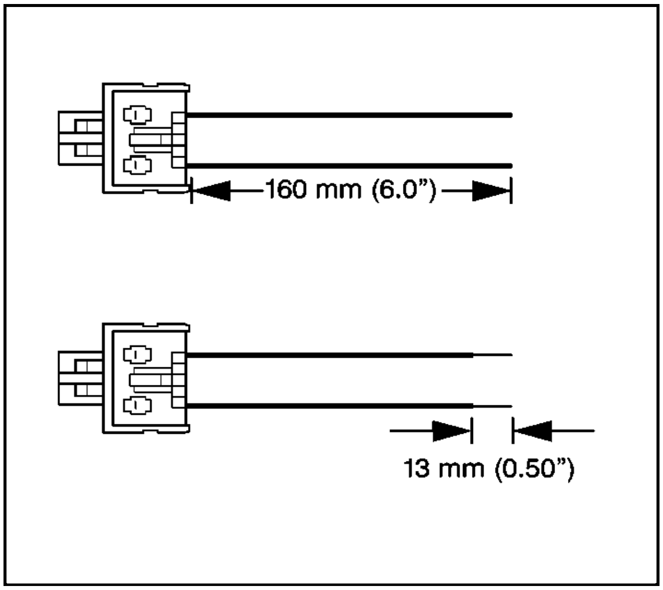
188444

22. Route the deployment harness out of the driver side of the vehicle.



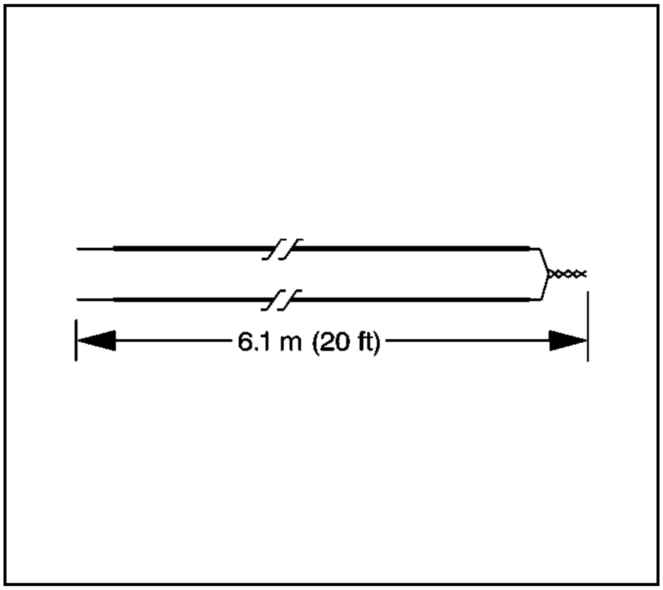
899820

23. Disconnect the yellow left roof rail harness connector from the vehicle harness connector.



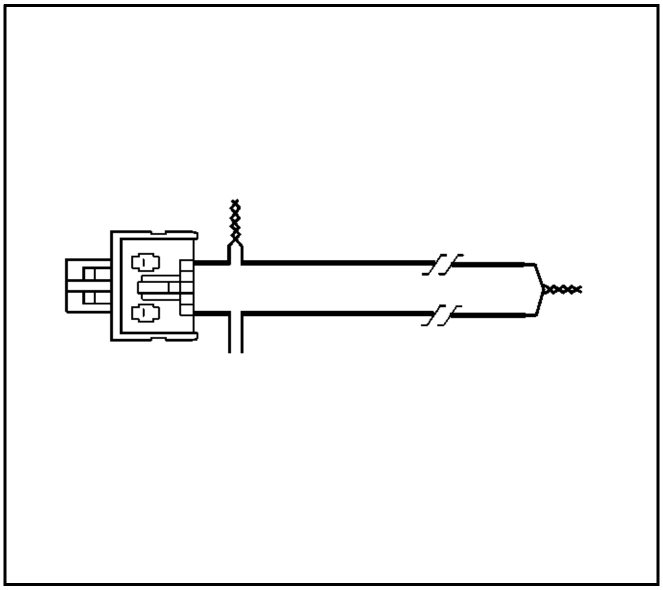
68649

24. Cut the harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
25. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.



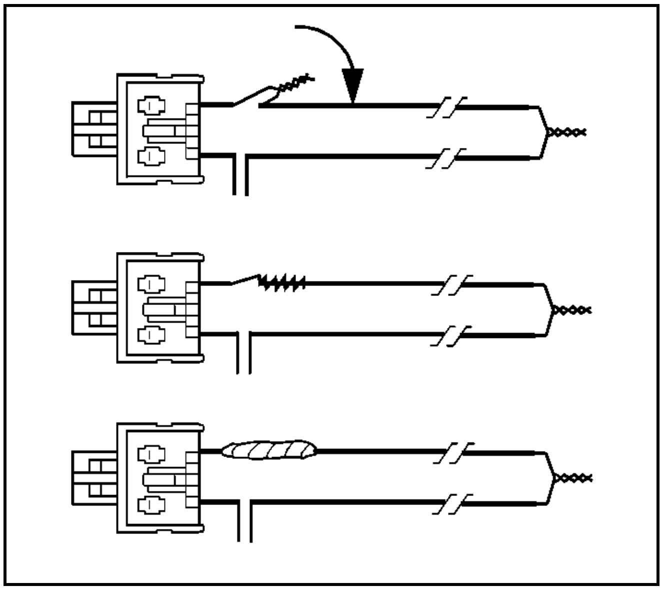
68651

26. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the roof rail air bag deployment harness.
27. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
28. Twist together one end from each of the wires in order to short the wires.



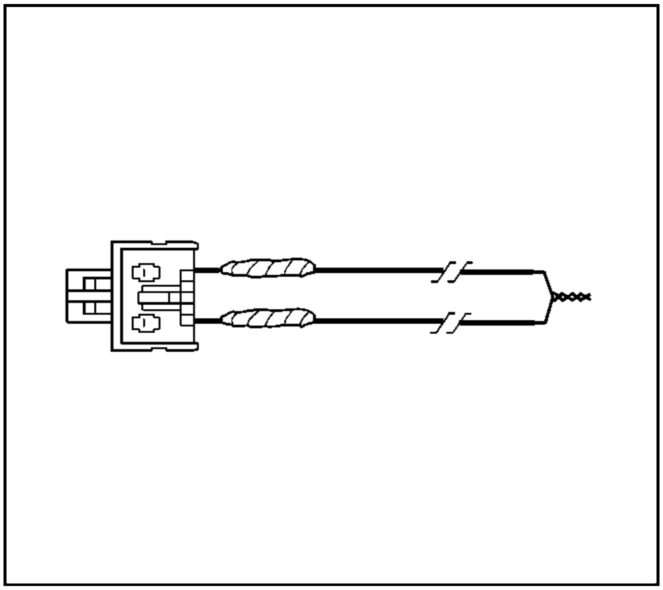
68652

29. Twist together one connector wire lead to one deployment wire.



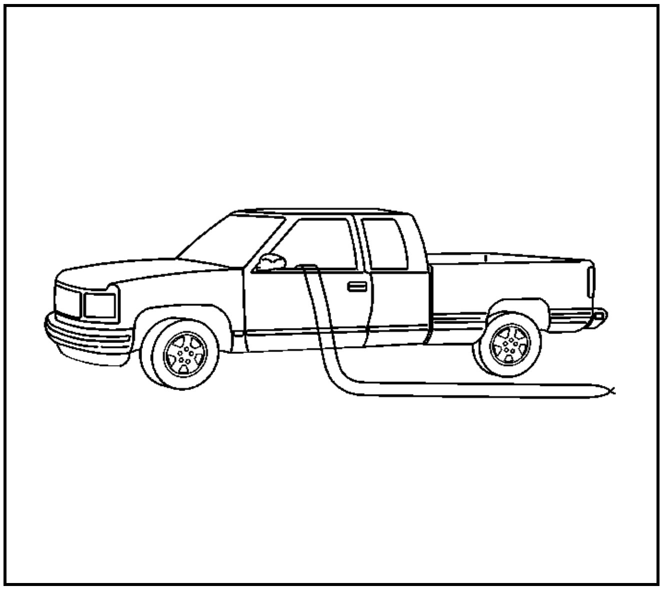
68660

30. Bend flat the twisted connection.
31. Secure and insulate the connection using electrical tape.



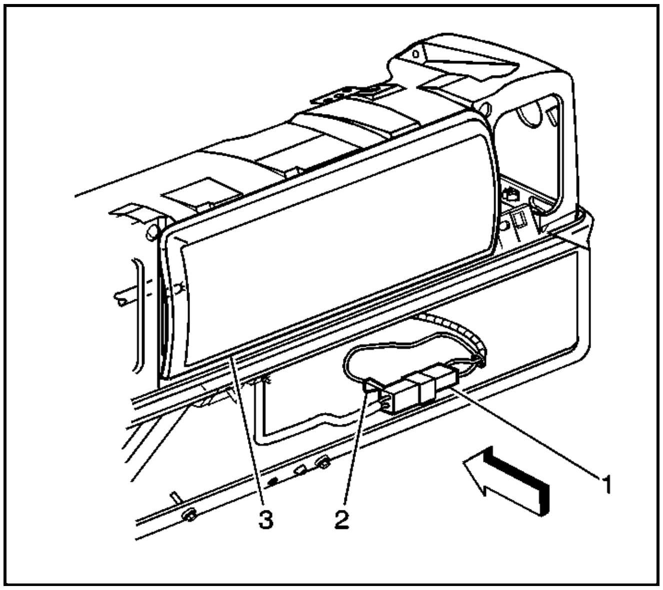
68662

32. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.
33. Connect the deployment harness to the yellow connector of the roof rail module.



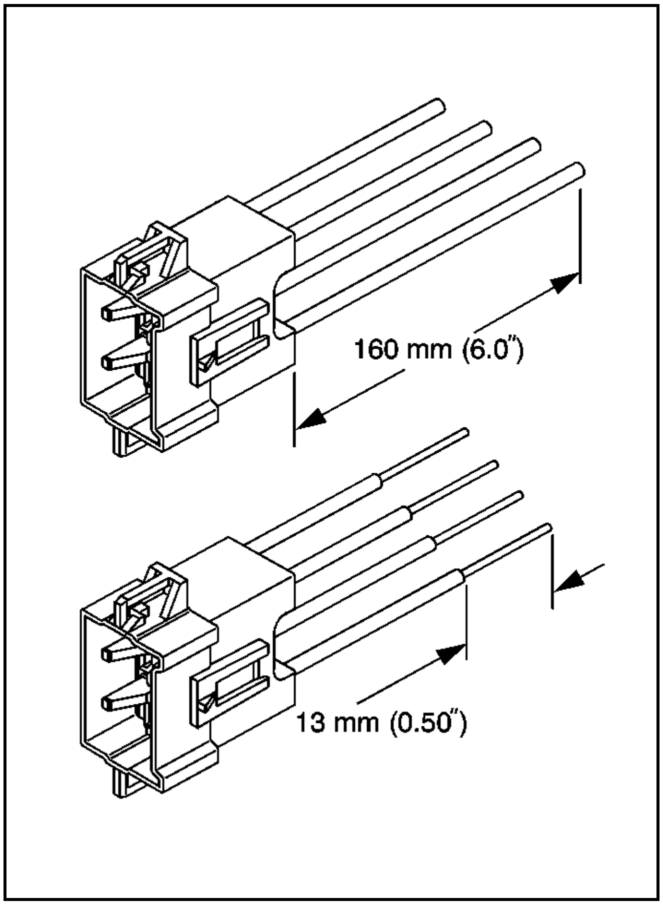
188444

34. Route the deployment harness out of the driver side of the vehicle.



398308

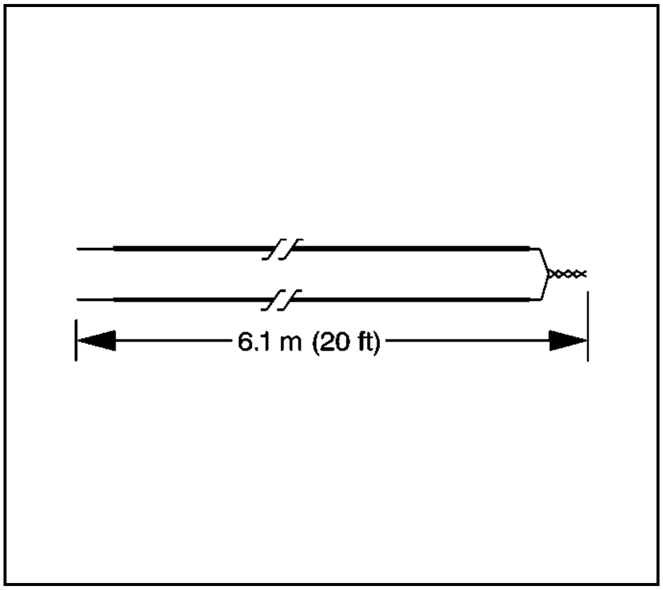
35. Disconnect the I/P module yellow harness connector (1) from the vehicle harness connector (2).



566915

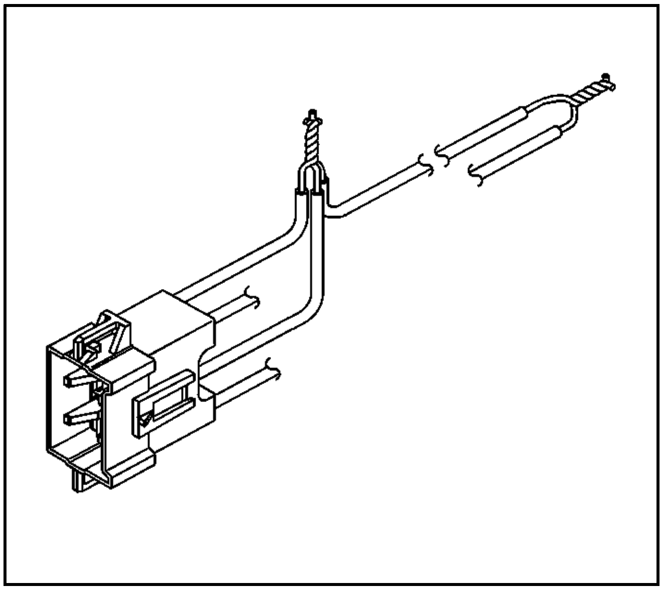
Note: If the vehicle is equipped with dual stage air bags the steering wheel module and I/P module will each have 4 wires. Refer to *Master Electrical Component List on page 7-853* for determining high and low circuits.

36. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
37. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.



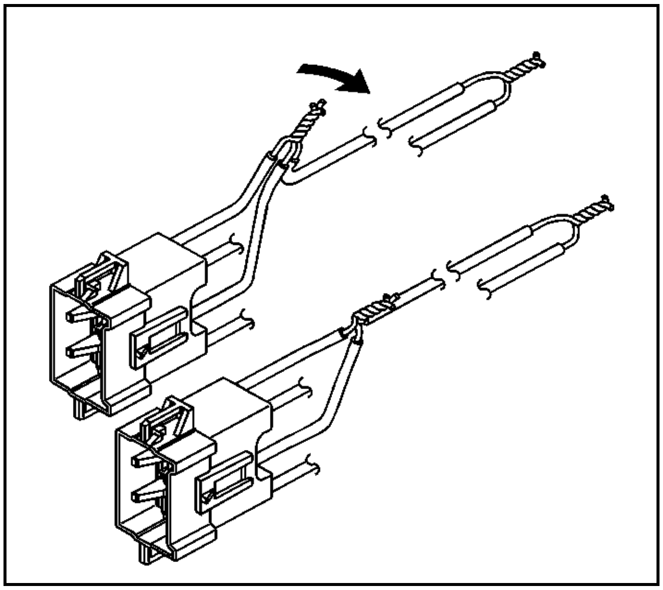
68651

38. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the passenger deployment harness.
39. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
40. Twist together one end from each of the wires in order to short the wires.



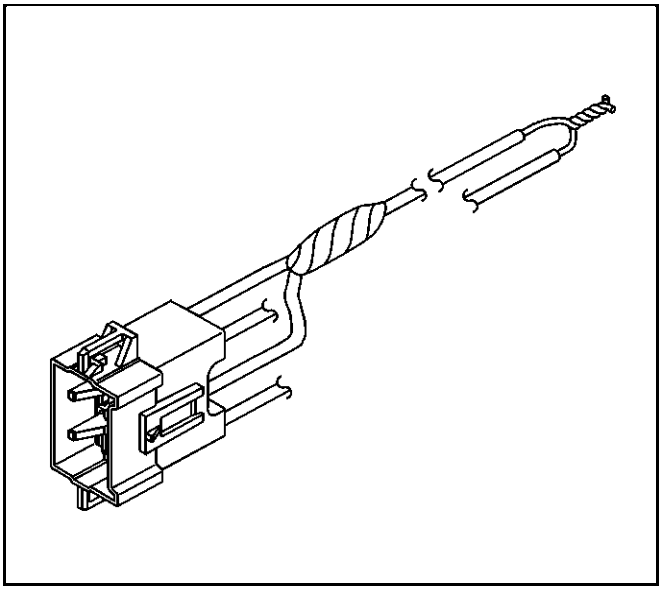
566918

41. Twist together the 2 connector wire leads from the high circuits from both stages of the I/P module to one set of deployment wires. Refer to *Master Electrical Component List on page 7-853* in order to determine the correct circuits.
42. Inspect that the 3-wire connection is secure.



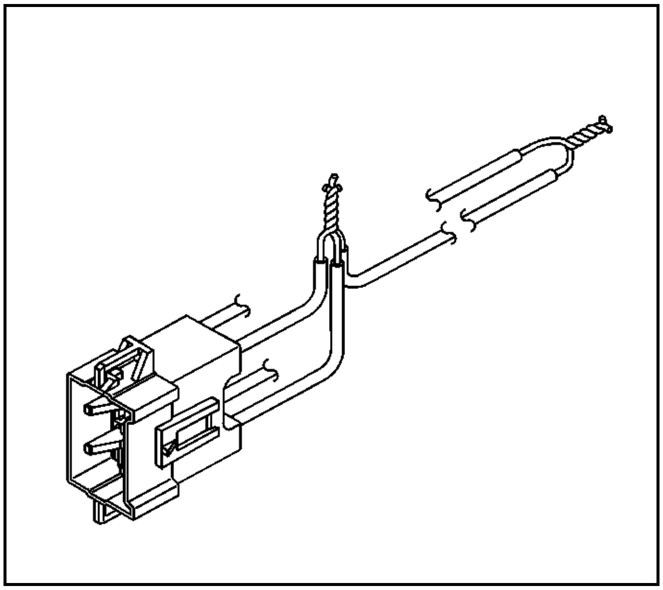
566922

43. Bend flat the twisted connection.



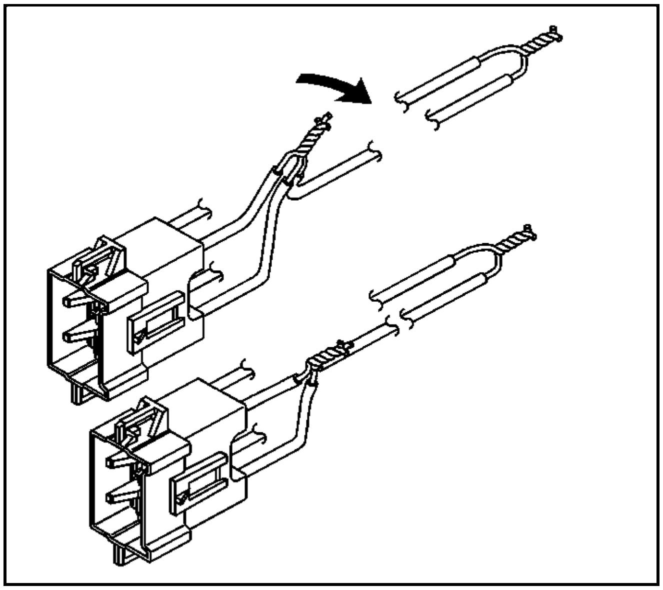
566927

44. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.



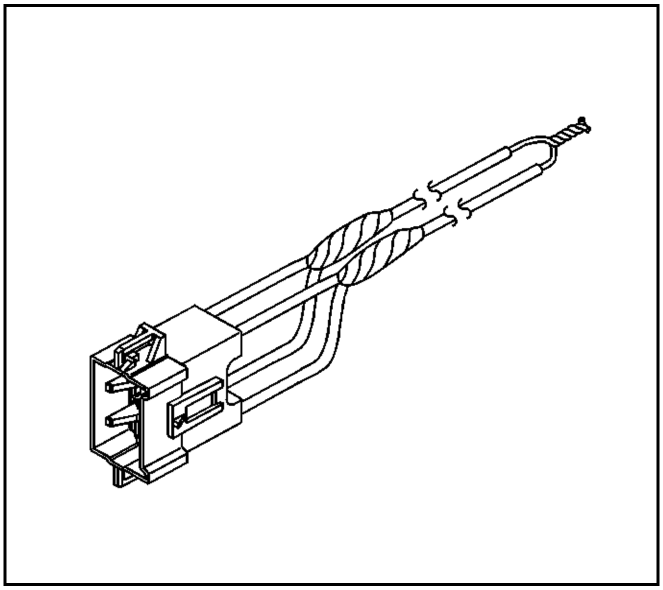
566932

45. Twist together the 2 connector wire leads from the low circuits from both stages of the I/P module to one set of deployment wires. Refer to *Master Electrical Component List on page 7-853* in order to determine the correct circuits.
46. Inspect that the 3-wire connection is secure.



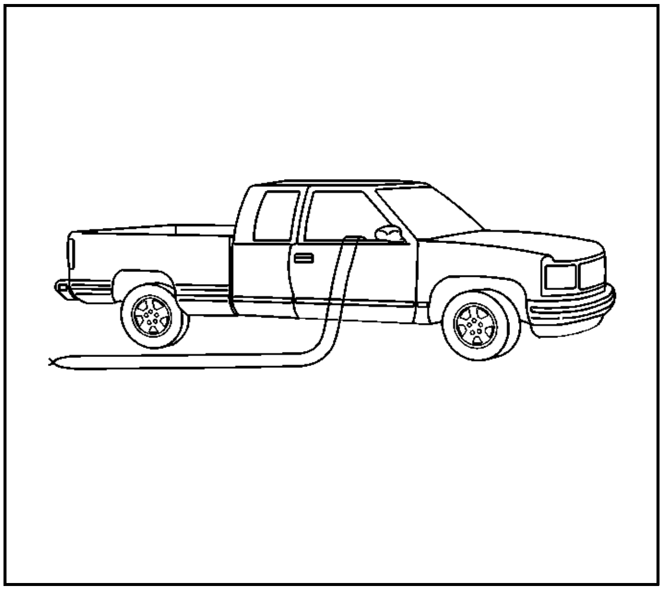
566936

47. Bend flat the twisted connection.



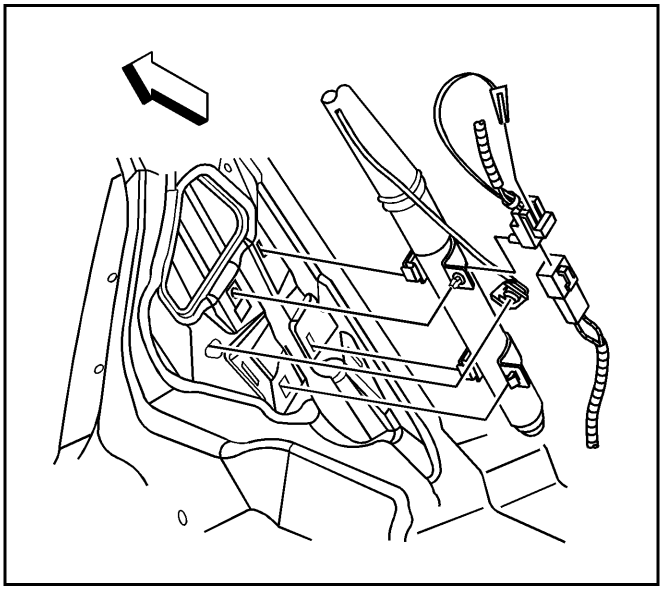
566942

48. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
49. Connect the deployment harness to the I/P module in-line connector.



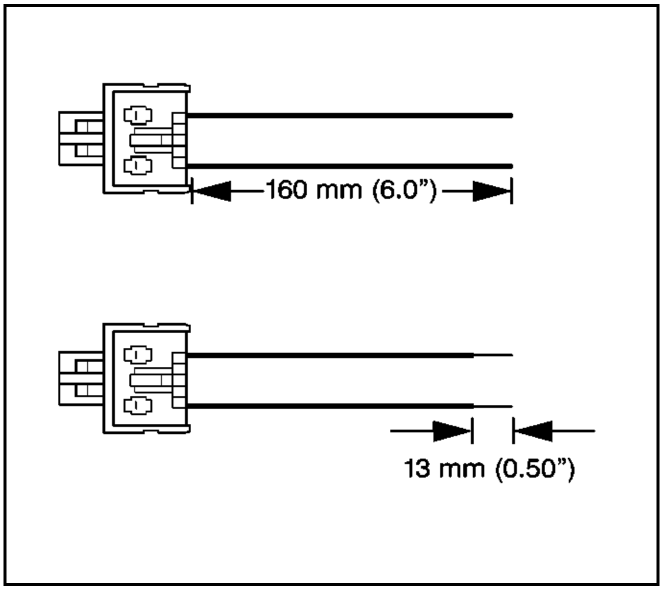
188440

50. Route the deployment harness out of the passenger side of the vehicle.



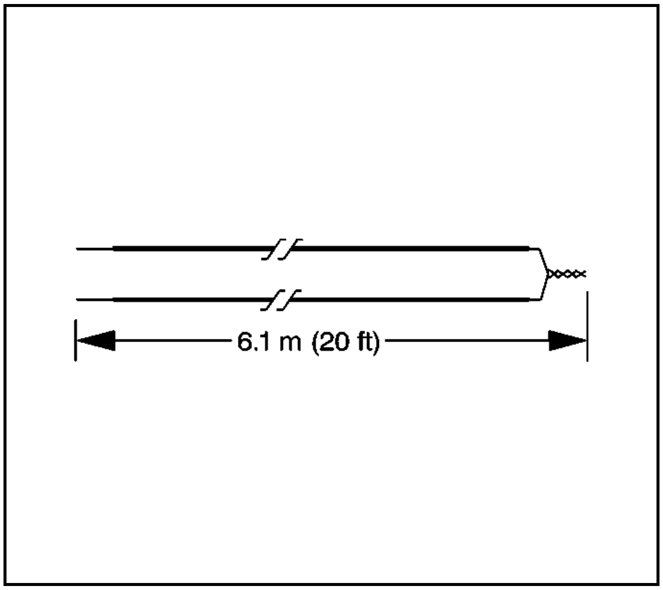
899820

51. Disconnect the yellow harness connector to the right roof rail air bag from the vehicle harness connector.



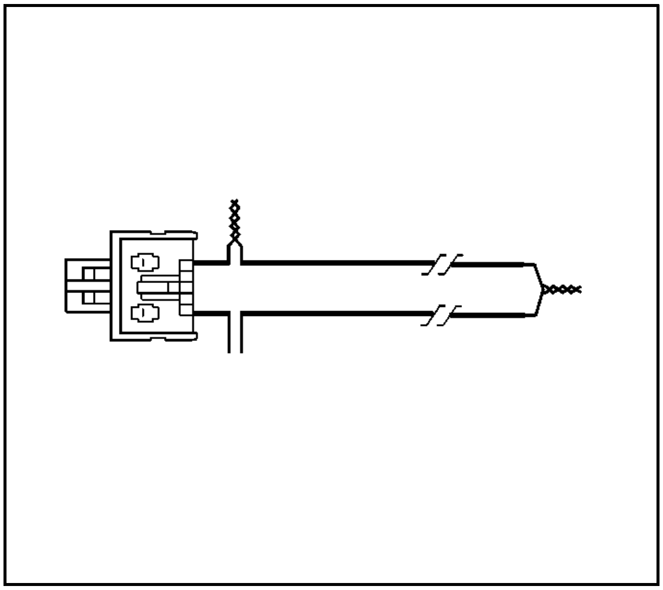
68649

52. Cut the harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
53. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.



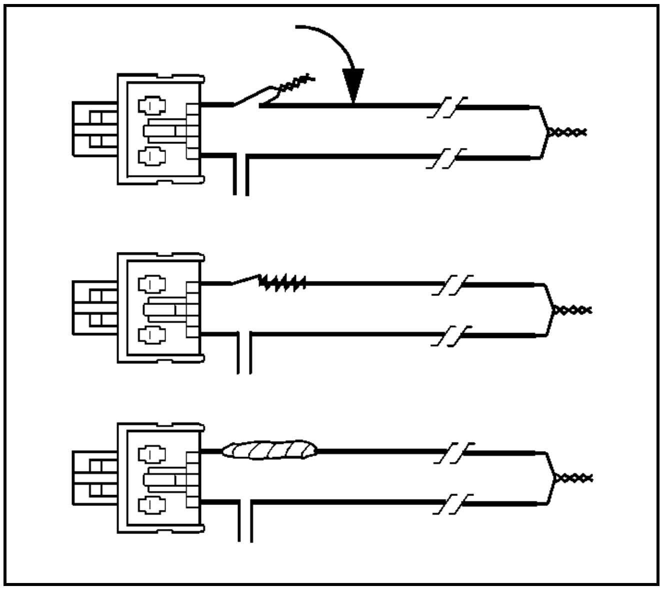
68651

54. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the roof rail module deployment harness.
55. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
56. Twist together one end from each of the wires in order to short the wires.



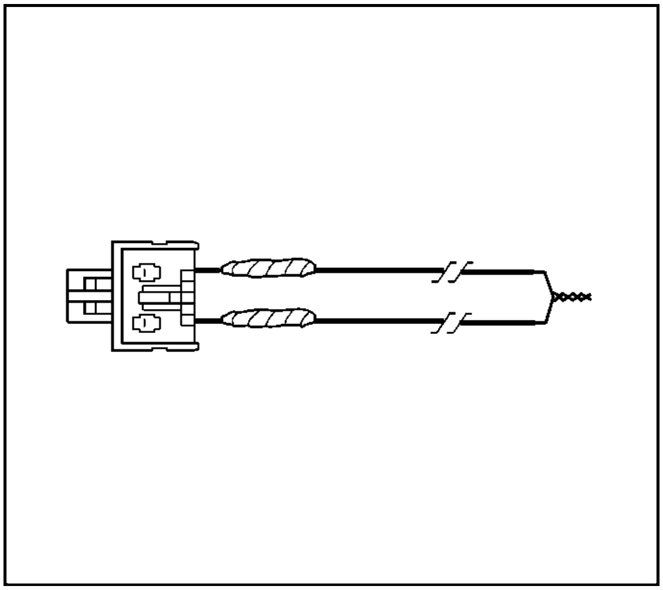
68652

57. Twist together one connector wire lead to one deployment wire.



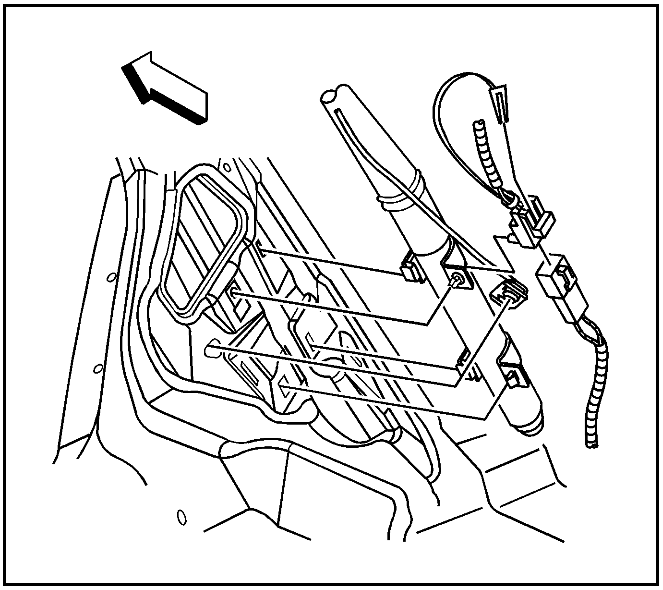
68660

58. Bend flat the twisted connection.
59. Secure and insulate the connection using electrical tape.



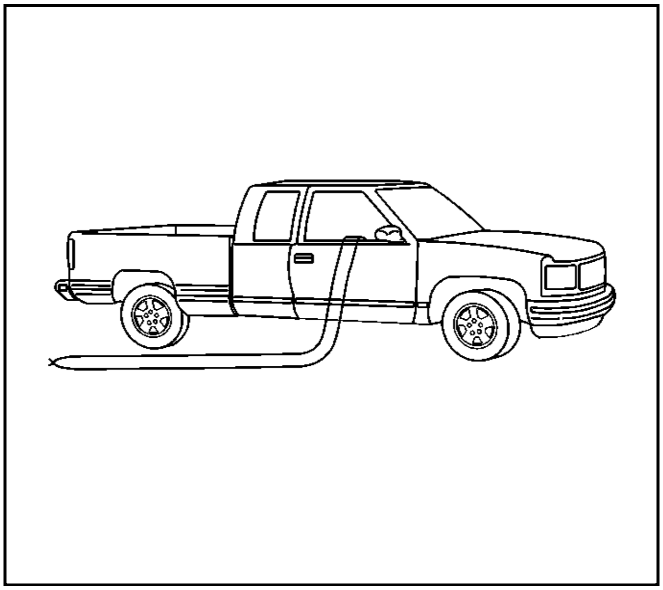
68662

60. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.



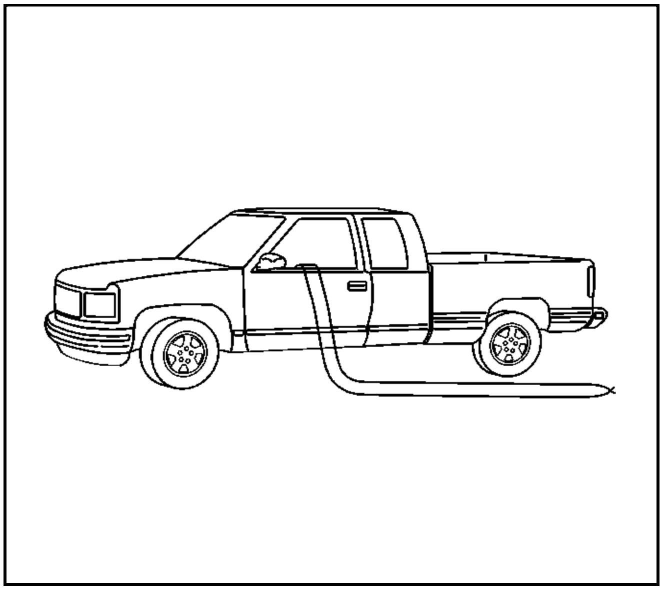
899820

61. Connect the deployment harness to the roof rail module yellow connector.



188440

62. Route the deployment harness out of the passenger side of the vehicle.
63. Completely cover the windshield and the front door window openings with a drop cloth.
64. Stretch to the full length all of the deployment harness wires on the right side of the vehicle.
65. Deploy each deployment loop one at a time.
66. Place a power source, 12 V minimum/2 A minimum, such as a vehicle battery, near the shorted end of the harnesses.
67. Separate one set of wires and touch the wire ends to the power source in order to deploy the selected inflator module.
68. Disconnect the deployment harness from the power source and twist the wire ends together.
69. Continue the same process with the remaining deployment harnesses.



188444

70. Stretch to the full length all of the deployment harness wires on the left side of the vehicle.
71. Deploy each deployment loop one at a time.
72. Place a power source, 12 V minimum/2 A minimum, such as a vehicle battery, near the shorted end of the harnesses.
73. Separate one set of wires and touch the wires ends to the power source in order to deploy the selected inflator modules.
74. Disconnect the deployment harness from the power source and twist the wire ends together.
75. Continue the same process with the remaining deployment harnesses.
76. Remove the drop cloth from the vehicle.
77. Disconnect all harnesses from the vehicle.
78. Discard the harnesses.
79. Scrap the vehicle in the same manner as a non-SIR equipped vehicle.
80. If one or all of the inflator modules did not deploy, use the relevant airbag replacement procedure to remove the undeployed modules from the vehicle.

Pretensioner Handling and Scrapping

Object-ID=5362589 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

Warning: SIO-ID=2051412 LMD=23-Jan-2008 ***When carrying an undeployed inflatable restraint seat belt pretensioner:***

- ***Do not carry the seat belt pretensioner by the wires or connector.***
- ***Carry the seat belt pretensioner by the piston tube, keeping hands and fingers away from the cable.***
- ***Make sure the open end of the seat belt pretensioner piston tube points away from you and other people.***

- ***Do not cover the seat belt pretensioner piston tube opening with your hand.***

Failure to observe these guidelines may result in personal injury.

Scrapping Procedure

During the course of a vehicles useful life, certain situations may arise which will require the disposal of a live and undeployed seat belt pretensioner. Do not dispose of a live and undeployed seat belt pretensioner through normal disposal channels until the seat belt pretensioner has been deployed. The following information covers the proper procedures for disposing of a live and undeployed seat belt pretensioner. Do not deploy the seat belt pretensioner in the following situations:

- After replacement of a seat belt pretensioner under warranty. The seat belt pretensioner may need to be returned undeployed to the manufacturer.
- If the vehicle is the subject of a Product Liability report, GM1241, related to the SIR system or the seat belt system. If the vehicle is subject to the Product Liability report, do not alter the SIR or seat belt system in any manner.
- If the vehicle is involved in a campaign affecting the seat belt pretensioners. Follow the instructions in the Campaign Service Bulletin for proper SIR handling procedures.

Deployment Procedures

Note: All Users must comply with all International, Federal, State, Provincial, and/or Local laws applicable to the activities it performs, including but not limited to handling, deploying, preparing, classifying, packaging, marking, labeling, and shipping dangerous goods. In the event of a conflict between the procedures set forth in any service manual and the laws that apply to you, you must follow those applicable laws.

The seat belt pretensioner can be deployed inside or outside of the vehicle. The method used depends upon the final disposition of the vehicle. Review the following procedures in order to determine which will work best in a given situation.

Deployment Outside Vehicle for Seat Belt Pretensioners

Deploy the seat belt pretensioners outside of the vehicle when the vehicle will be returned to service. Situations that require deployment outside of the vehicle include the following:

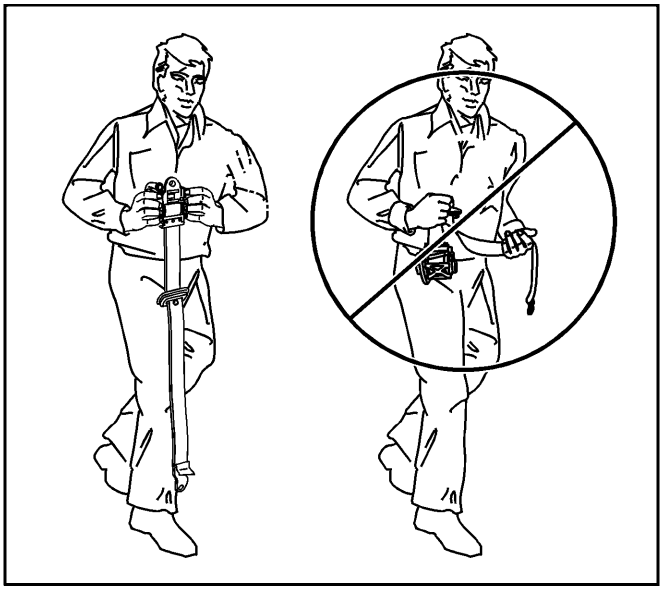
- Using the SIR diagnostics, it is determined that the seat belt pretensioner is malfunctioning.
- The seat belt pretensioner pigtail, if equipped, is damaged.
- The seat belt pretensioner connector is damaged.
- The seat belt pretensioner connector terminals are damaged.

Warning: SIO-ID=2051410 LMD=17-Jun-2015 ***In order to prevent accidental deployment and the risk of personal injury, do not dispose of an undeployed inflatable restraint seat belt pretensioner as normal shop waste. Undeployed seat belt pretensioners contain substances that could cause severe illness or personal injury if their sealed containers are damaged during disposal. Use the following deployment procedures to safely dispose of an undeployed seat belt pretensioner. Failure to observe the following disposal methods may be a violation of appropriate country, regional or local laws.***

Deployment and disposal of a malfunctioning seat belt pretensioner is subject to any required retention period.

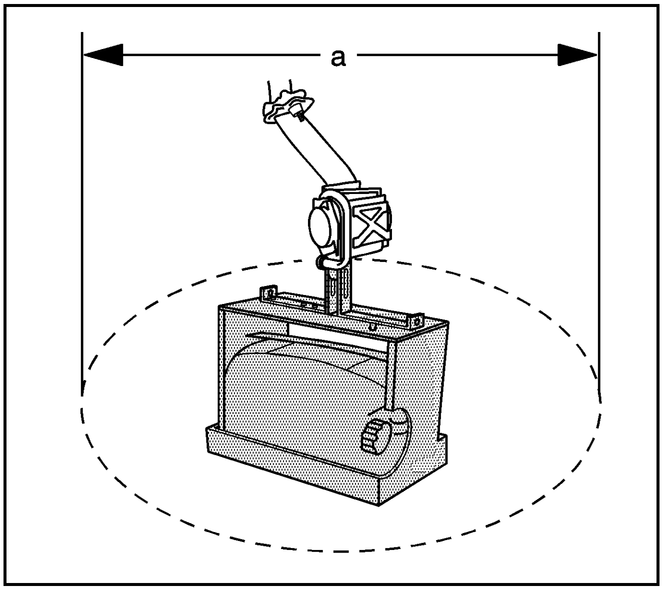
Special Tools

- *J 38826* SIR Deployment Harness
- *J 39401-B* SIR Deployment Fixture
- An appropriate pigtail adaptor



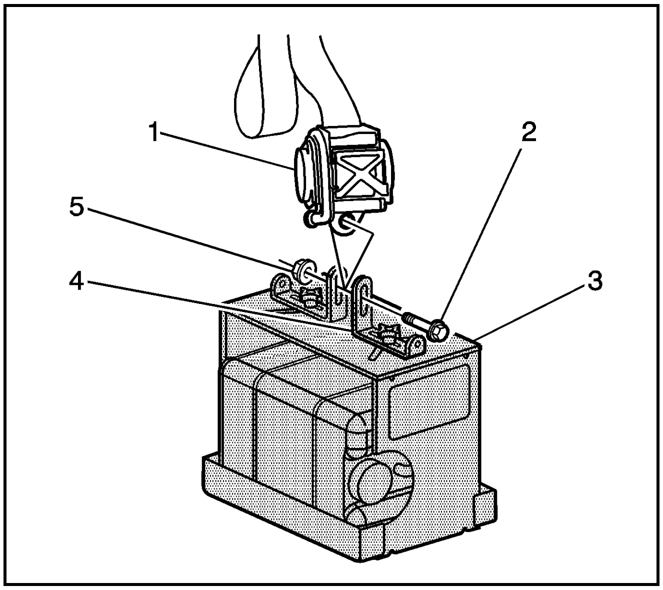
1225155

1. Turn OFF the ignition.
2. Remove the ignition key.
3. Disconnect negative battery terminal. Refer to: SIR Disabling and Enabling on page 8-481
4. Put on safety glasses and hearing protection.
5. Remove the seat belt pretensioner from the vehicle. Refer to Steering Wheel Airbag Replacement on page 8-507.
6. When carrying a seat belt pretensioner to the deployment area, keep fingers clear of the seat belt webbing.



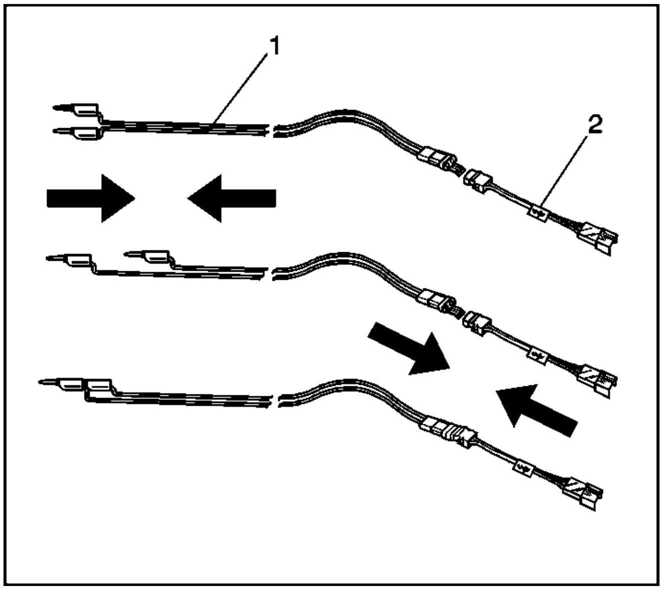
1225166

7. Clear a space on the ground about 1.85 m (6 ft) in diameter for deployment of the seat belt pretensioner. If possible, use a paved, outdoor location free of activity. Otherwise, use a space free of activity on the shop floor. Make sure you have sufficient ventilation.
8. Make sure no loose or flammable objects are in the area.
9. Place the *J 39401-B* SIR deployment fixture in the center of the cleared area.
10. Fill the fixture plastic reservoir with water or sand.



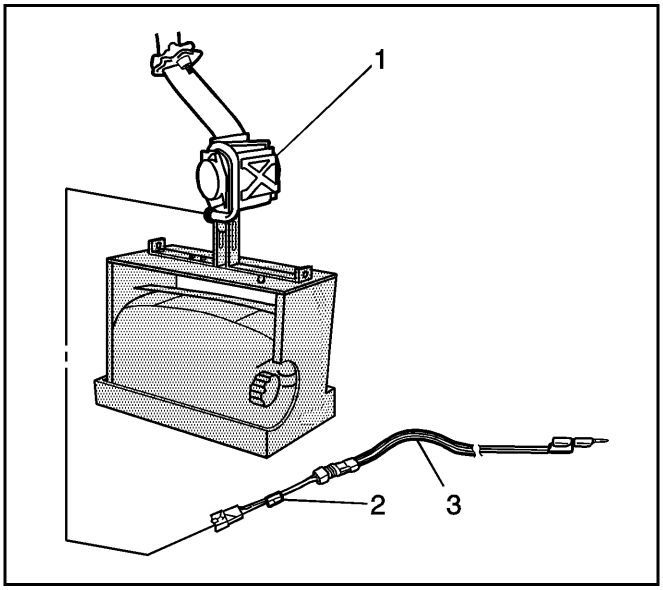
1225176

11. Mount the seat belt pretensioner (1) in the SIR deployment fixture (3) with the open end facing up using the following mounting method.
    - Adjust and secure the *J 39401-B* SIR deployment fixture arms (4) to the deployment fixture.
    - To mount, use the proper size bolt (2) and nut (5) with washers in order to secure the seat belt pretensioner (1) to the deployment fixture brackets.
    - Securely tighten all fasteners prior to deployment.



68645

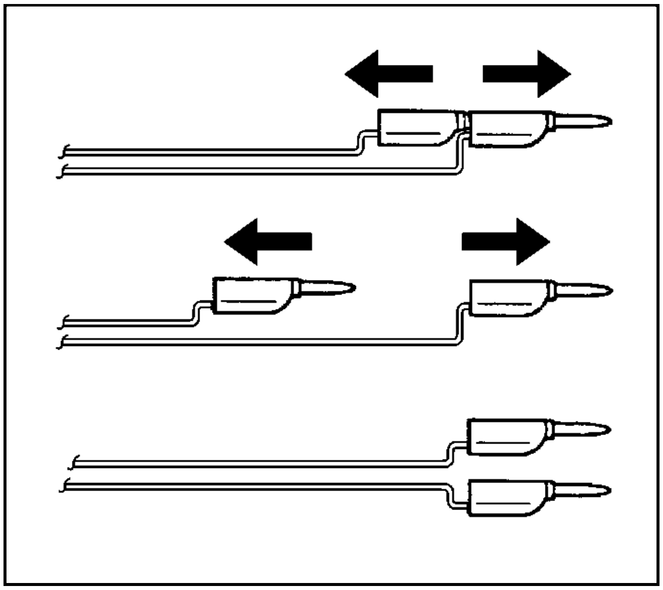
12. Inspect the *J 38826* SIR deployment harness and the appropriate pigtail adapter for damage. Replace as needed.
13. Short the 2 SIR deployment harness (1) leads together using 1 banana plug seated into the other.
14. Connect the appropriate pigtail adapter (2) to the SIR deployment harness.



1225179

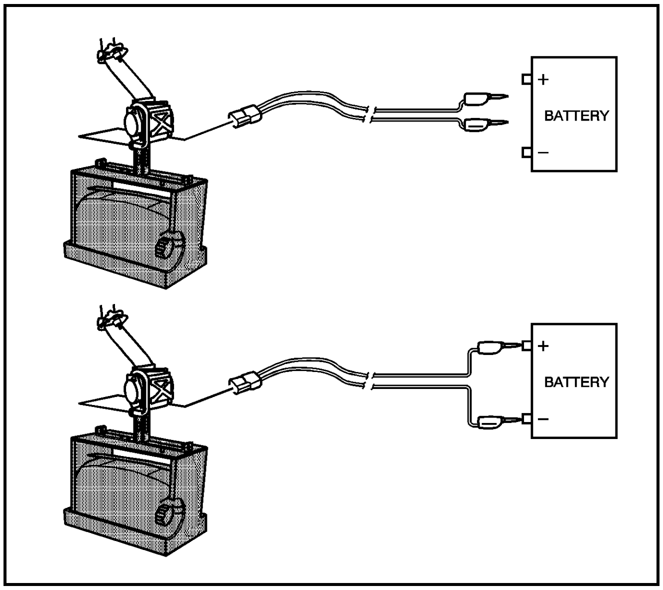
15. Extend the SIR deployment harness and adapter to full length from the deployment fixture.
16. Connect the seat belt pretensioner connector (1) to the adapter (2) on the deployment harness (3).

    Note: When deploying a seat belt pretensioner, the rapid expansion of gas is very loud. Notify the people in the immediate area that a seat belt pretensioner will be deployed.
17. Clear the area of people.



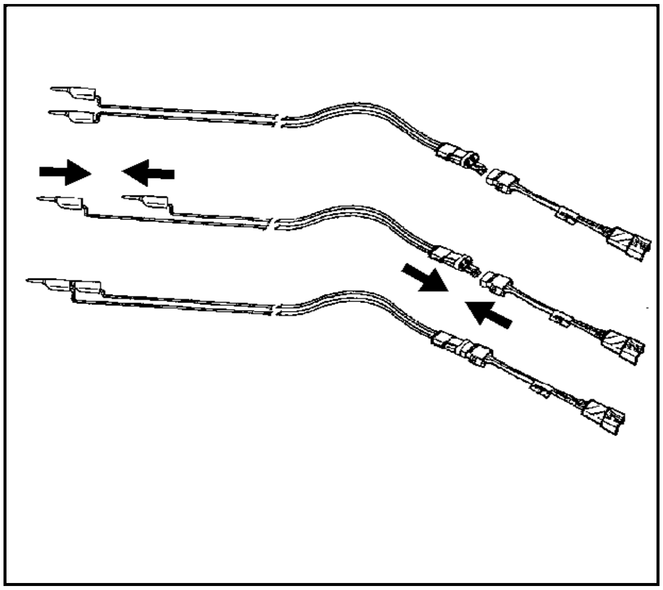
39382

18. Separate the 2 banana plugs on the SIR deployment harness.



1225186

19. Place a 12 volt minimum/2 amp minimum power source, such as a vehicle battery, near the shorted end of the harness.
20. Connect the SIR deployment harness wires to the power source. Seat belt pretensioner deployment will occur when contact is made.
21. Disconnect the SIR deployment harness from the power source after the seat belt pretensioner deploys.



9581

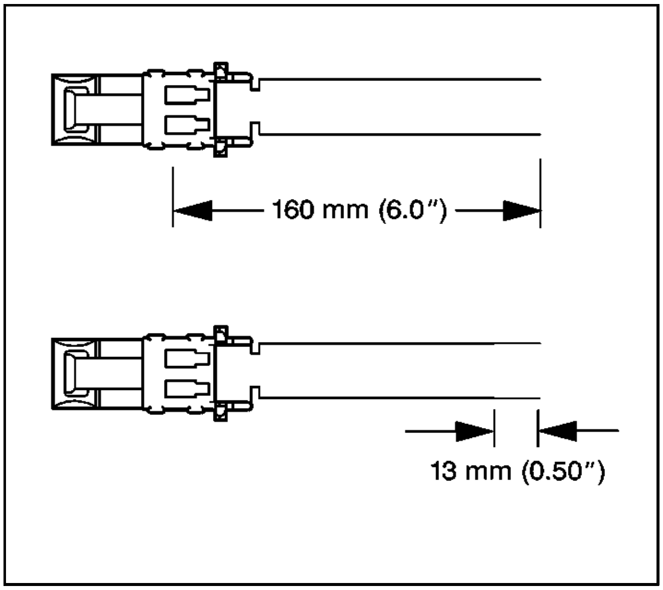
22. Seat one banana plug into the other in order to short the deployment harness leads.
23. If the seat pretensioner did not deploy, disconnect the adapter and discontinue the procedure. Contact the Technical Assistance Group. Otherwise, proceed to the following steps.
24. Put on a pair of shop gloves.
25. Disconnect the pigtail adapter from the seat belt pretensioner as soon as possible.

26. Dispose of the deployed seat belt pretensioner through normal refuse channels.
27. Wash hands with a mild soap.

Deployment Inside Vehicle – Vehicle Scrapping Procedure

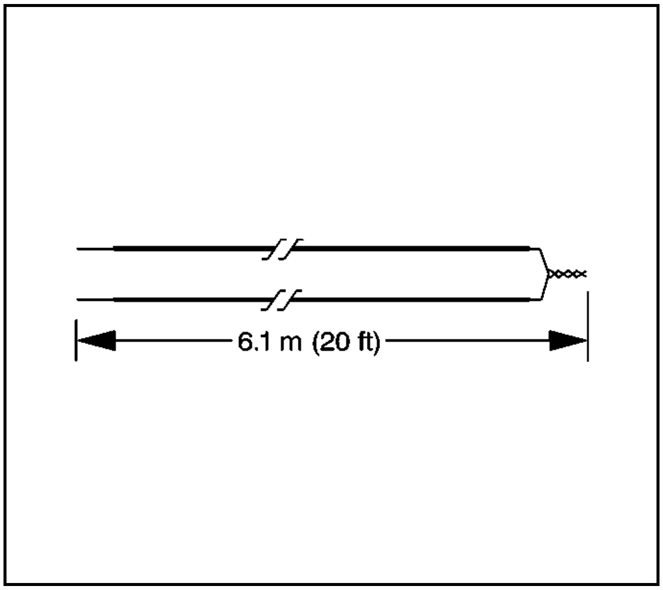
Deploy the seat belt pretensioners inside of the vehicle when destroying the vehicle or when salvaging the vehicle for parts. This includes but is not limited to the following situations:

- The vehicle has completed its useful life.
- Irreparable damage occurs to the vehicle in a non–deployment type accident.
- Irreparable damage occurs to the vehicle during a theft.
- The vehicle is being salvaged for parts to be used on a vehicle with a different VIN as opposed to rebuilding as the same VIN.



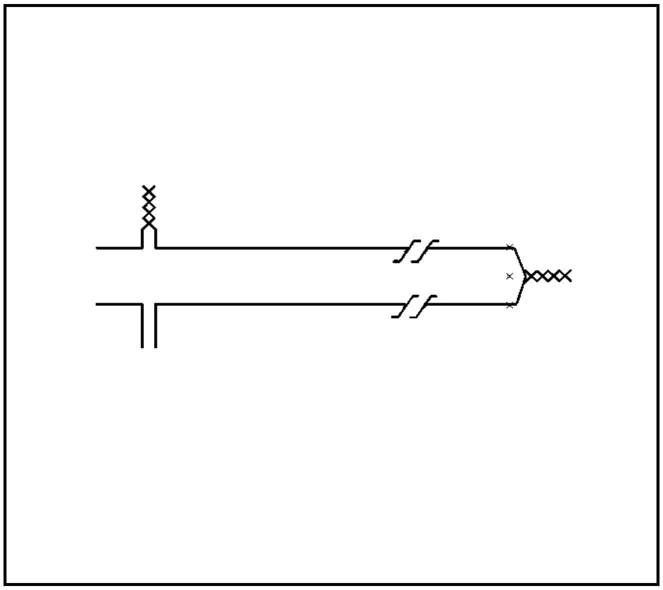
263002

1. Turn OFF the ignition.
2. Remove the ignition key.
3. Disconnect negative battery terminal. Refer to: *SIR Disabling and Enabling on page 8-481*
4. Put on safety glasses and hearing protection.
5. Remove all loose objects from the front seats.
6. Disconnect the seat belt pretensioner connector. Refer to *Front Seat Belt Retractor Replacement (Regular Cab) on page 8-594* or *Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) on page 8-610*.
7. Cut the seat belt pretensioner harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
8. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.



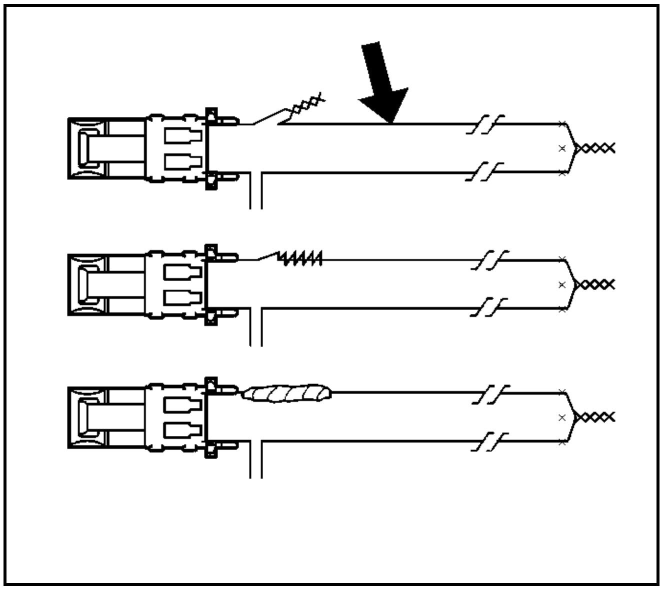
68651

9. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used for the seat belt pretensioner deployment harness.
10. Strip 13 mm (0.5 in) of insulation from both ends of the wires cut in the previous step.
11. Twist together one end from each of the wires in order to short the wires. Deployment wires shall remain shorted, and not connected to a power source until you are ready to deploy the seat belt pretensioner.



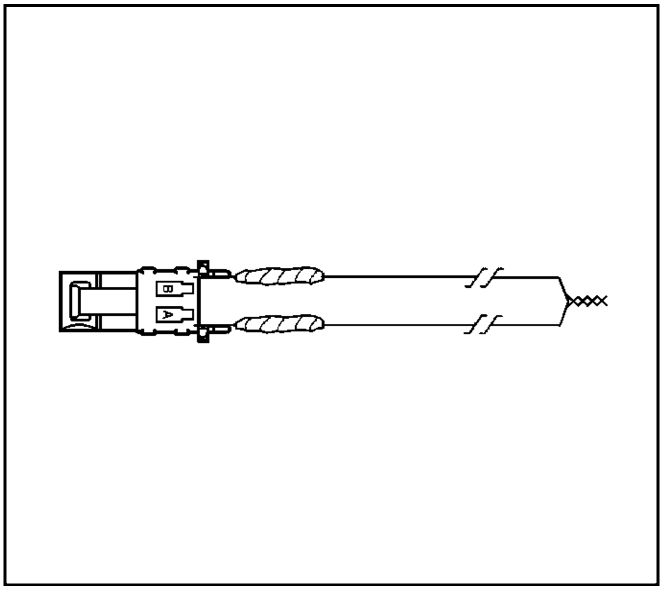
263005

12. Twist together one connector wire lead to one deployment wire.
13. Inspect that the previous connections is secure.



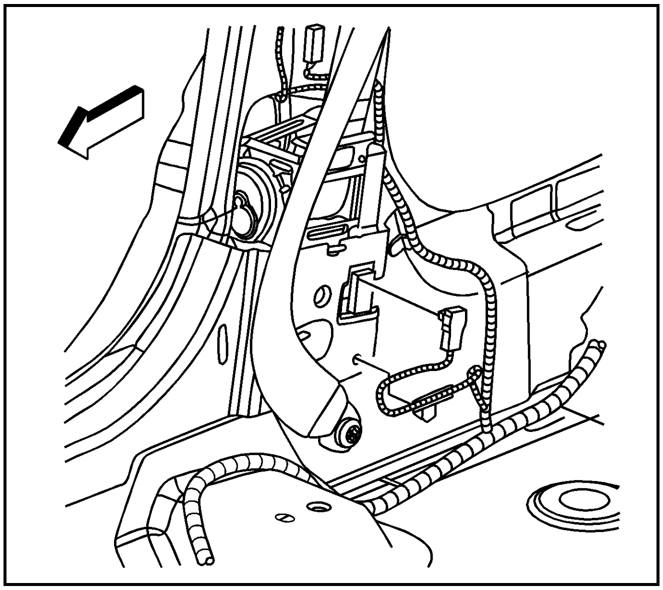
263008

14. Bend flat the twisted connection.
15. Secure and insulate the connection using electrical tape.



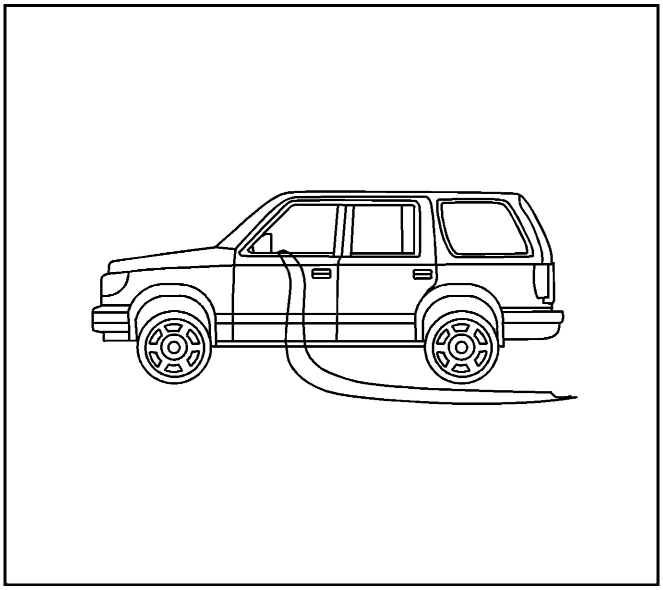
263012

16. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.



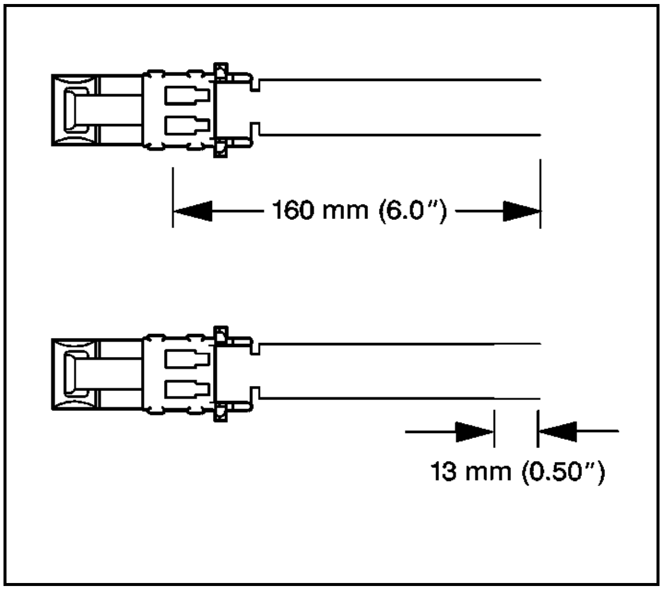
899818

17. Connect the deployment harness to the seat belt pretensioner connector.



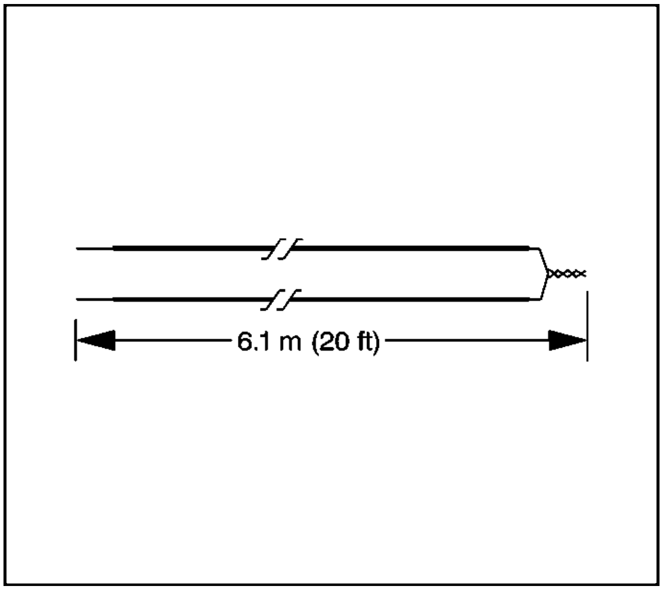
885119

18. Route the deployment harness out of the driver side of the vehicle.



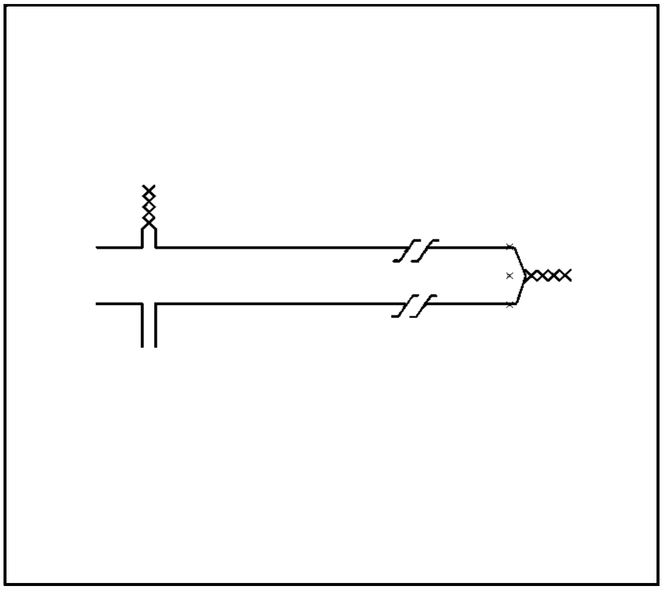
263002

19. Disconnect the seat belt pretensioner connector. Refer to *Front Seat Belt Retractor Replacement (Regular Cab) on page 8-594* or *Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) on page 8-610*.
20. Cut the seat belt pretensioner connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
21. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.



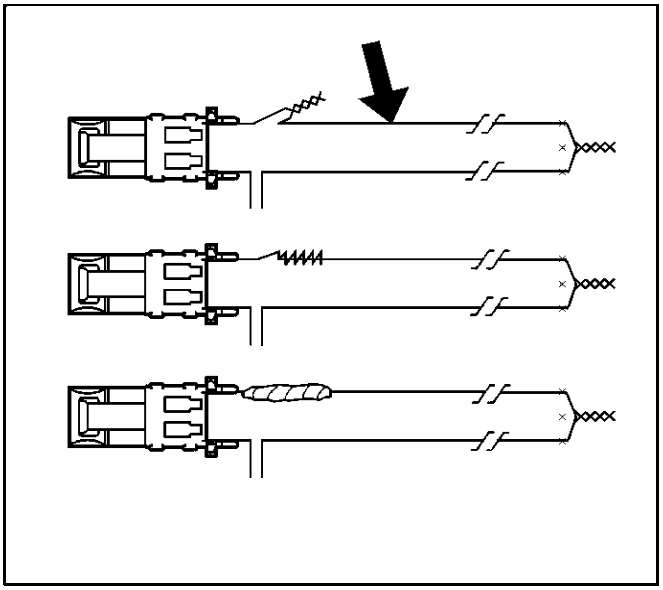
68651

22. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used for the seat belt pretensioner deployment harness.
23. Strip 13 mm (0.5 in) of insulation from both ends of the wires cut in the previous step.
24. Twist together one end from each of the wires in order to short the wires. The deployment wires are to remain shorted, and not connected to a power source until you are ready to deploy the seat belt pretensioner.



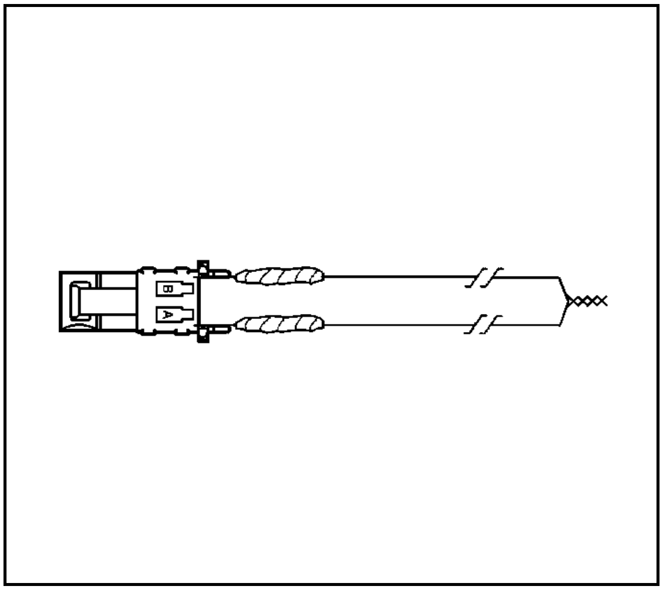
263005

25. Twist together one connector wire lead to one deployment wire.
26. Inspect that the previous connection is secure.



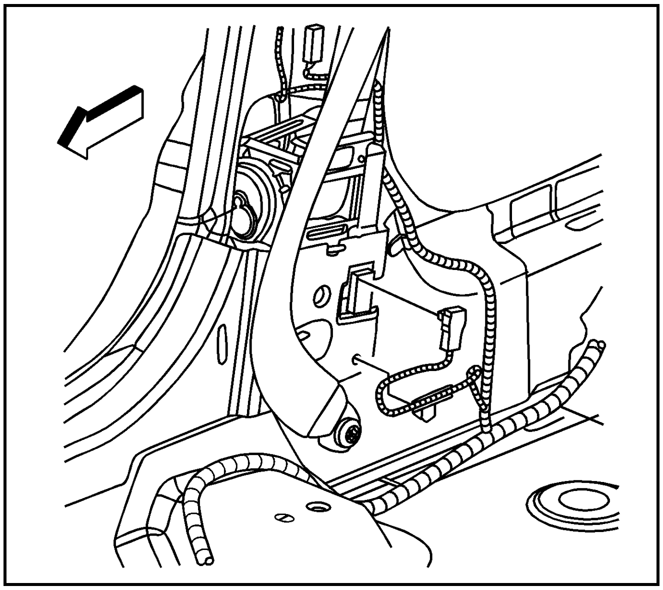
263008

27. Bend flat the twisted connection.
28. Secure and insulate the connection using electrical tape.



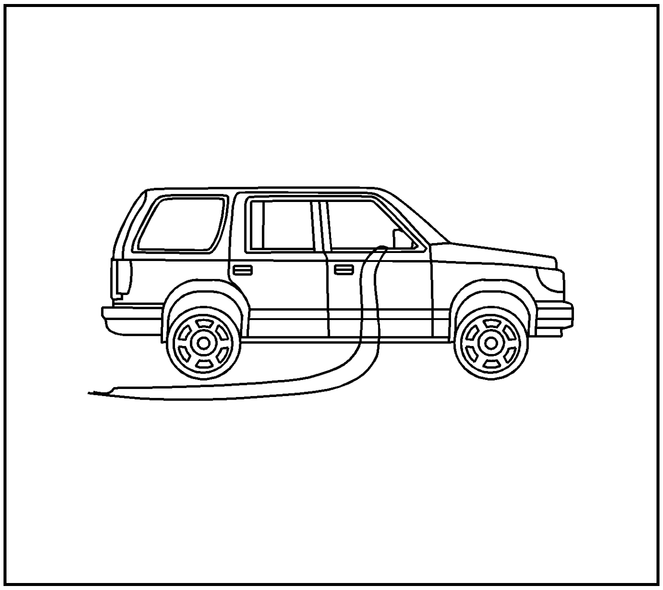
263012

29. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.



899818

30. Connect the deployment harness to the seat belt pretensioner connector.



885102

31. Route the deployment harness out of the passenger's side of the vehicle.
32. Completely cover the windshield and the front door openings with a drop cloth.
33. Deploy each deployment loop one at a time.
34. Stretch out all of the deployment harness wires on the left and right side of the vehicle to their full length.
35. Place a power source, 12 volt minimum/2 amp minimum, such as a vehicle battery, near the shorted end of the harnesses.
36. Separate one set of wires and touch the wire ends to the power source in order to deploy the seat belt pretensioners.
37. Disconnect the deployment harness from the power source and twist the wire ends together.
38. Continue the same process with the remaining deployment harnesses that are available.
39. Remove the drop cloth from the vehicle.
40. Disconnect all harnesses from the vehicle.
41. Discard the harnesses.
42. Scrap the vehicle in the same manner as a non-SIR equipped vehicle.
43. If one or more of the seat belt pretensioners did not deploy, perform the following steps to remove the undeployed seat belt pretensioner from the vehicle, refer to *Front Seat Belt Retractor Replacement (Regular Cab) on page 8-594* or *Front Seat Belt Retractor Replacement (Double Cab, Crew Cab) on page 8-610*.
44. Call the Technical Assistance Group for further assistance.

Description and Operation

Supplemental Inflatable Restraint System Description and Operation

Object-ID=5191784 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

The supplemental inflatable restraint (SIR) system, comprised of the Restraints Control module (RCM), impact sensors, Airbags, Restraint Occupant Classification System Module, and seat belt Pretensioners, supplements the protection offered by the seat belts. The RCM determines the severity of a collision using data collected from impact sensors located at strategic points on the vehicle. The RCM processes the information provided by the sensors to provide the safest combination of Airbag and pretensioner deployment. The RCM will deploy the Airbags and Pretensioners if it detects a collision of sufficient force. If the force of the impact is not sufficient to warrant Airbag deployment, the RCM may still deploy the seat belt Pretensioners. The RCM contains a sensing device that translates vehicle acceleration to an electrical signal. The RCM compares these signals to the threshold values stored in memory. If the signals exceed the stored threshold value, the RCM will determine the severity of the event and may deploy restraints. The RCM continuously monitors the deployment loops and electrical components for malfunctions. Upon detection of a circuit malfunction, the RCM will set a DTC and illuminate the SIR system Airbag indicator.

Note: The SIR System may be active up to 30 seconds after the ignition transitions to OFF.

The supplemental inflatable restraint system utilizes the following components:

- Restraints Control Module
- Airbag Indicator
- Airbags
- Seat Belt Pretensioners
- Impact Sensors
- Restraints Occupant Classification System Module (AL0)
- Passenger Airbag Indicator (C99 / AL0)
- Passenger Airbag Disable Switch (C99)
- Seat Belt Tension Sensor
- Seat Belt Indicators
- Event Data Recorder (EDR) Data
- Non-locked event storage overwrite mechanism and over writable event types

Restraints Control Module

The RCM is the control unit for the SIR system. The RCM contains internal sensors in addition to the external impact sensors. The RCM contains sensors which translate vehicle acceleration into an electrical signal, which may be used by other modules. In the event of a collision, the RCM compares the signals from the internal and external impact sensors to a threshold value stored in memory. When the generated signals exceed the stored value, the RCM will cause current to flow through the appropriate deployment loops to deploy the restraints. The RCM records the SIR system status when a deployment occurs and illuminates the SIR system Airbag indicator. The RCM performs continuous diagnostic monitoring of the SIR system electrical components and circuitry when the ignition is ON. If the RCM detects a malfunction, a DTC will set and the RCM will command the instrument cluster to illuminate the SIR system Airbag indicator, notifying the driver that a malfunction exists. If power is lost during a collision, the RCM maintains a limited energy reserve for deployment of the Airbags. It is important when disabling the SIR system for servicing or rescue operations to allow the limited energy reserve to dissipate, which could take up to 2 minutes.

Airbag Indicator

The SIR system Airbag indicator, located in the instrument cluster, is used to notify the driver of SIR system malfunctions and verify that the RCM is communicating with the instrument cluster. When the ignition is turned ON, the RCM is active. The instrument cluster will momentarily turn on the SIR system Airbag indicator. While the indicator is on, the RCM conducts tests on all SIR system components and circuits. If no malfunctions are detected the RCM will communicate with the instrument cluster through the serial data circuit and command the SIR system Airbag indicator to turn OFF. The RCM provides continuous monitoring of the SIR system components and circuits by conducting a sequence of checks. If a malfunction is detected the RCM will set a DTC and command the instrument cluster to illuminate the SIR system Airbag indicator via serial data. The presence of an SIR system malfunction could result in non-deployment of the inflatable restraints or deployment in conditions that normally would not warrant deployment. The SIR system Airbag indicator will remain on for the duration of the malfunction or until the system has been repaired.

Airbags

The vehicle will contain a number of Airbags, depending on vehicle available and optional equipment:

- Steering wheel
- Instrument panel
- Driver seat
- Passenger seat
- Instrument Panel Lower Airbag
- Passenger knee
- Left roof rail
- Right roof rail

To view the locations of the Airbags refer to: *Master Electrical Component List on page 7-853*.

Airbags contain a housing, inflatable Airbag, an initiating device, a canister of gas generating material and, in some cases, stored compressed gas. Each Airbag has a discrete deployment loop to supply current and deploy the Airbag. The current passing through the Airbags ignite the material in the canister producing a rapid generation of gas and is some cases, the release of compressed gas. The gas produced from this reaction rapidly inflates the Airbag. Once the Airbag is inflated, it deflates through the Airbag vent holes and/or the bag fabric.

The steering wheel and instrument panel Airbag will either be a dual-stage or a single stage design.
A dual-stage Airbag uses two stages of deployment, which varies the amount of restraint to the occupant according to the collision severity. For moderate frontal collisions, the Airbag deploys at less than full deployment which consists of stage 1 of the Airbag. During a more severe frontal collision, a full deployment is initiated which consists of stage 1 and stage 2 of the Airbag.

Seat Belt Pretensioners

The vehicle will contain a number of seat belt Pretensioners, depending on vehicle available and optional equipment:

- Driver – Seat belt anchor
- Driver – Seat belt retractor
- Passenger – Seat belt anchor
- Passenger – Seat belt retractor
- Rear Outboard Left/Right Passenger – Seat belt retractor

To view the locations of the Airbags refer to: *Master Electrical Component List on page 7-853*.

The seat belt Pretensioners consist of a housing, seat belt retractor, seat belt anchor, seat belt webbing, initiator, and a canister of gas generating materials. The initiator is part of the seat belt pretensioner deployment loop. When the vehicle is involved in a collision of sufficient force, the RCM causes current to flow through the seat belt deployment loops to the initiator. Current passing through the initiator ignites the material in the canister producing a rapid generation of gas. The gas produced from this reaction deploys the seat belt Pretensioners which removes the slack in the seat belts. Depending on the severity of the collision, the seat belt Pretensioners may deploy without the frontal inflator modules deploying, or they will deploy immediately before the frontal inflator modules deploy.

Impact Sensors

The vehicle will contain a number of impact sensors, depending on vehicle available and optional equipment:

- Front Impact Sensor — Left
- Front Impact Sensor — Right
- Side Impact Sensor — Left Front
- Side Impact Sensor — Right Front
- Side Impact Sensor — Left Middle
- Side Impact Sensor — Right Middle
- Side Impact Sensor — Left Rear
- Side Impact Sensor — Right Rear

To view the locations of the Airbags refer to: *Master Electrical Component List on page 7-853*.

The impact sensors contain a sensing device which monitors vehicle acceleration or pressure to detect collisions that are severe enough to warrant Airbag deployment. The impact sensors are not part of the deployment loop, but instead provide input to the RCM.

Restraints Occupant Classification System Module

The Restraints Occupant Classification System Module is used to monitor the type of occupant that is sitting in the front passenger seat and communicate the status to the RCM. The RCM then uses this information to determine whether to enable or suppress the deployment of the passenger instrument panel Airbag. The Restraints Occupant Classification System Module consists of an electronic control module, a sensor mat in the seat, Seat Belt Tension Sensor (if equipped), and a harness.

Passenger Airbag Indicator

The passenger Airbag indicator identifies the status of the instrument panel Airbag. The RCM will momentarily turn on the passenger Airbag indicators after ignition is turned ON. If an occupant is not detected in the passenger seat or the occupant type is not suitable for Airbag deployment, the Restraints Control module will illuminate the passenger Airbag OFF indicator. If an occupant is detected in the passenger seat, the Restraints Control module will illuminate the passenger Airbag ON indicator.

Seat Belt Tension Sensor

The seat belt tension sensor (if equipped) is mounted on the passenger seat belt retractor to measure the seat belt tension. If the shoulder portion of a passenger seat belt is fully extended, the infant car seat restraint locking feature may be engaged, disabling the passenger Airbag.

Passenger Airbag Disable Switch

The passenger Airbag disable switch provides the means to manually disable the ability for the passenger instrument panel Airbag to deploy. The vehicle has a passenger Airbag status indicator to inform the driver when the passenger Airbag is on or off based on the disable switch position.

Seat Belt Indicators

The seat belt indicators are controlled by the RCM. For further information on seat belt indicators refer to: *Seat Belt System Description and Operation on page 8-424*.

Event Data Recorder (EDR) Data

The vehicle is equipped with an event data recorder (EDR). When a specific collision or similar condition occurs (such as airbag deployment or hitting a road obstacle), the recorder records the data related to vehicle dynamics and safety systems within a short period of time, such as the status of occupant safety components, status of accelerator/brake pedals, vehicle speed, etc., helping understand the operating conditions of vehicle systems.

The data elements recorded by EDR mainly include the following data:

No.	Data Element	Data Source	Collection Method
A1	Longitudinal delta V	EDR acceleration sensor in EDR controller	None
A2	Maximum recorded longitudinal delta V	EDR acceleration sensor in EDR controller	None
A3	Time to maximum recorded longitudinal delta V	EDR acceleration sensor in EDR controller	None
A4	Clipping flag	Since B1 lateral acceleration has been recorded, it is not necessary to record the clipping flag	None
A5	Vehicle velocity	Wheel speed sensor, transmitted via CAN bus after calculation	CAN bus
A6	Service brake, on or off	Brake pedal position sensor, transmitted via CAN bus after calculation	CAN bus
A7	Driver safety belt status	Driver seat belt buckle	Hard wire
A8	Accelerator pedal position, percentage of fully open position	Accelerator pedal position sensor, transmitted via CAN bus after calculation	CAN bus
A9	Revolution Per Minute (RPM)	Engine crankshaft position sensor, transmitted via CAN bus after calculation *Not required for electric vehicles	CAN bus *Not required for electric vehicles
A10	Power-on cycle at event	EDR controller	None
A11	Power-on cycle at reading	EDR controller	None
A12	Complete status of event data record	EDR controller	None
A13	Time interval from this event to the last event	EDR controller	None
A14	Vehicle Identification Number(VIN)	EDR controller	None
A15	ECU hardware number	EDR controller	None
A16	ECU serial number	EDR controller	None
A17	ECU software number	EDR controller	None
B1	Longitudinal acceleration	EDR acceleration sensor in EDR controller	None

No contents related to intelligent control are available now for Level A elements above.

The recorded vehicle speed data is obtained from the on-board CAN bus. They are obtained by a vehicle speed sensor connected to other modules on the vehicle (such as engine control or transmission control module or new energy control, etc.), and transmitted and released via CAN bus after calculation.

The above data can be extracted by purchased general on-board diagnostic tools that meet the requirements in SAE J1962 and ISO 15765 and their referenced standards. (Such as CDR tools from BOSCH or MDI2 tools used at SAIC General Motors service stations)

Non-locked event storage overwrite mechanism and over writable event types

Locking Conditions:

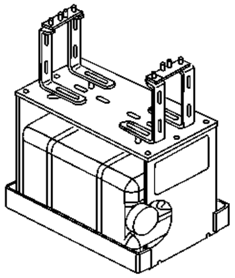
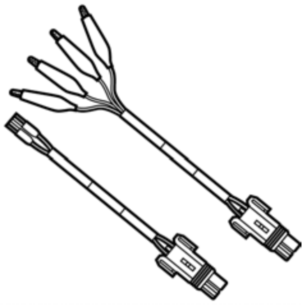
- Deployment event of irreversible restraints will be permanently locked.
- Non-deployment events will be locked, but become non-locked events after 255 ignition cycles.

Overwrite Mechanism:

- Permanently locked events will not be overwritten. Only the non-locked EDR events can be overwritten, overwriting the earliest event first.
- If the EDR storage space is insufficient, the deployment events of irreversible restraints can overwrite any non-deployment events.
- If the EDR storage space is insuficcient, the non-deployment events can overwrite any non-deployment events that become non-locked after 255 ignition cycles.

Special Tools and Equipment

Object-ID=2717141 Owner=Bunker, Timothy LMD=27-Jun-2022 LMB=Blanzy, Ken

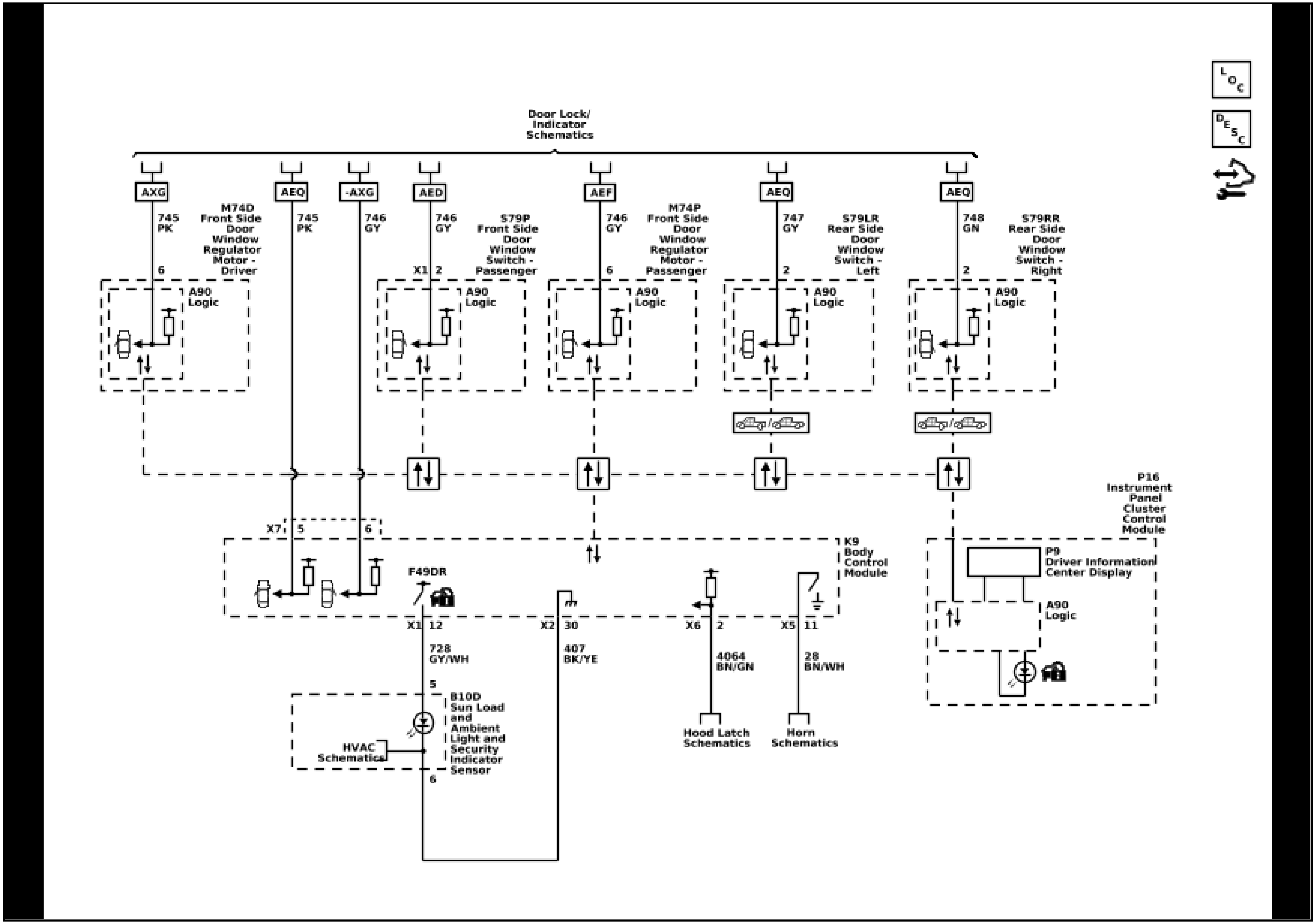
Illustration	Tool Number/ Description
9082	EL 38826 J 38826 SIR Deployment Harness
 456738	EL 39401-B J 39401-B SIR Deployment Fixture
 5223440	EL 38826–200 SIR Deployment Harness Jumper

Safety and Security

Theft Deterrent

Schematic and Routing Diagrams

Theft Deterrent System Schematics Object-ID=6152415 (Theft Deterrent System)


Door Lock/ Indicator Schematics
AXG
745 PK
M74D Front Side Door Window Regulator Motor - Driver
6
A90 Logic
AEQ
745 PK
-AXG
746 GY
AED
746 GY
X1 2
S79P Front Side Door Window Switch - Passenger
A90 Logic
AEF
746 GY
M74P Front Side Door Window Regulator Motor - Passenger
6
A90 Logic
AEQ
747 GY
S79LR Rear Side Door Window Switch - Left
2
A90 Logic
AEQ
748 GN
S79RR Rear Side Door Window Switch - Right
2
A90 Logic
X7 5 6
K9 Body Control Module
F49DR
X1 12
728 GY/WH
X2 30
407 BK/YE
X6 2
4064 BN/GN
X5 11
28 BN/WH
5
B10D Sun Load and Ambient Light and Security Indicator Sensor
6
HVAC Schematics
Hood Latch Schematics
Horn Schematics
P16 Instrument Panel Cluster Control Module
P9 Driver Information Center Display
A90 Logic

6150652

Diagnostic Information and Procedures

DTC B113C

Object-ID=5666164 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

DTC Descriptors

DTC B113C: Security Indicator Control

For symptom byte information, refer to Symptom Byte List.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control	2	2	1	—
Low Reference	—	2	—	—
1. Security LED always ON 2. Security LED inoperative				

Circuit/System Description

The security LED is controlled by the body control module (BCM) based on commands from the content theft deterrent system. The security LED is located in the door panel as part of the handle pocket and is supplied ground at all times. When the content theft deterrent system requests the LED be illuminated, the BCM applies voltage to the control circuit, illuminating the LED.

Reference Information

Schematic Reference

Theft Deterrent System Schematics on page 8-685

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Theft Systems Description and Operation on page 8-689

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Arm the content theft deterrent system.
2. Verify the security LED illuminates or flashes during the arming sequence.

⇒ **If the security LED does not illuminate or flash**

Refer to Circuit/System Testing.

⇓ **If the security LED illuminates or flashes**

3. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the P18 Door Lock Status Indicator. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 30 Ω between the low reference circuit terminal 30 and ground.

⇒ **If 30 Ω or greater**

   2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

   2.2. Test for less than 2 Ω in the low reference circuit end to end.

   ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

   ⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If less than 10 Ω**

3. Ignition ON, connect a test lamp between the control circuit terminal 12 and ground.
4. Verify the test lamp turns ON and OFF when commanding the Security Indicator On and Off with a scan tool.

⇒ **If the test lamp is always OFF**

  4.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

  4.2. Test for infinite resistance between the control circuit and ground.

  ⇒ If less than infinite resistance, repair the short to ground on the circuit.

  ⇓ If infinite resistance

  4.3. Test for less than 2 Ω in the control circuit end to end.

  ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

  ⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇒ **If the test lamp is always ON**

  4.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

  4.2. Test for less than 1 V between the control circuit and ground.

  ⇒ If 1 V or greater, repair the short to voltage on the circuit.

  ⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If the test lamp turns ON and OFF**

5. Test or replace the P18 Door Lock Status Indicator.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Control Module References for module replacement, programming, and setup.

Symptoms - Theft Deterrent

Object-ID=2539188 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Note: The following steps must be completed before using the symptom tables.

1. Perform Diagnostic System Check - Vehicle in order to verify that all of the following are true:
   - There are no DTCs set.
   - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to the following *Theft Systems Description and Operation on page 8-689*.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Theft Deterrent System.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- *Content Theft Deterrent Malfunction on page 8-687*
- *Security Indicator Malfunction on page 8-688*

Content Theft Deterrent Malfunction

Object-ID=5614995 Owner=Day, Colin LMD=10-Mar-2023 LMB=Day, Colin

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

Circuit/System Description

The content theft deterrent system is a software based system in which the body control module (BCM) actively monitors certain inputs to determine if unauthorized vehicle access is being attempted. Based on inputs such as the door ajar switches, hood ajar switch (if equipped), the rear compartment ajar switch (if equipped), and the intrusion/inclination sensor (if equipped), the BCM determines whether a content theft deterrent alarm is warranted. If unauthorized access is being detected, the BCM will sound the power sounder and flash the exterior lamps as a means of theft deterrence.

Diagnostic Aids

The scan tool Content Theft Deterrent Trigger History 1, 2, and 3 parameters can be used to help isolate an intermittent unwanted content theft deterrent alarm. These parameters are a rolling history of the previous three causes of a theft deterrent alarm. If all three parameters are indicating the same alarm trigger, the indicated input should be the starting point when diagnosing an intermittent concern.

Reference Information

Schematic Reference

Theft Deterrent System Schematics on page 8-685

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Theft Systems Description and Operation on page 8-689

Electrical Information Reference

- Circuit Testing
- Connector Repairs

- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition OFF/Vehicle OFF.
2. Verify each indicator/message transitions between the ajar and closed state while opening and closing each vehicle door, hood, and rear compartment.

⇒ **If the indicator/message does not change**

Refer to Vehicle Access.

⇓ **If each indicator/message changes**

3. Completely lower the driver door window and close all vehicle doors, ignition OFF/Vehicle OFF.
4. Arm the content theft deterrent system by locking the door with the keyless entry transmitter.
5. Verify the scan tool Content Theft Deterrent Alarm Status parameter is Armed.

⇒ **If not Armed**

Refer to *Keyless Entry System Malfunction on page 8-249*.

⇓ **If Armed**

6. Without disarming the system, reach in through the open driver window and open the driver door.
7. Verify the scan tool Content Theft Deterrent Alarm Status parameter is Alarm.

⇒ **If not Alarm**

Replace the K9 Body Control Module.

⇓ **If Alarm**

8. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for body control module replacement, programming, and setup.

Security Indicator Malfunction

Object-ID=5666165 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis
- An overview of each diagnostic category can be found here: Diagnostic Procedure Instructions

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control	2	2	1	—
Low Reference	—	2	—	—
1. Security LED always ON 2. Security LED inoperative				

Circuit/System Description

The security LED is controlled by the body control module (BCM) based on commands from the content theft deterrent system. The security LED is located in the door panel as part of the handle pocket and is supplied ground at all times. When the content theft deterrent system requests the LED be illuminated, the BCM applies voltage to the control circuit, illuminating the LED.

Reference Information

Schematic Reference

Theft Deterrent System Schematics on page 8-685

Connector End View Reference

Master Electrical Component List on page 7-853

Description and Operation

Theft Systems Description and Operation on page 8-689

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Arm the content theft deterrent system.
2. Verify the security LED illuminates or flashes during the arming sequence.

⇒ **If the security LED does not illuminate or flash**

Refer to Circuit/System Testing.

⇓ **If the security LED illuminates or flashes**

3. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the P18 Door Lock Status Indicator. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 30 Ω between the low reference circuit terminal 30 and ground.

⇒ **If 30 Ω or greater**

  2.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

  2.2. Test for less than 2 Ω in the low reference circuit end to end.

  ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

  ⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇓ **If less than 10 Ω**

3. Ignition ON, connect a test lamp between the control circuit terminal 12 and ground.
4. Verify the test lamp turns ON and OFF when commanding the Security Indicator On and Off with a scan tool.

⇒ **If the test lamp is always OFF**

  4.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

  4.2. Test for infinite resistance between the control circuit and ground.

  ⇒ If less than infinite resistance, repair the short to ground on the circuit.

  ⇓ If infinite resistance

  4.3. Test for less than 2 Ω in the control circuit end to end.

  ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

  ⇒ If less than 2 Ω, replace the K9 Body Control Module.

⇒ **If the test lamp is always ON**

  4.1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.

  4.2. Test for less than 1 V between the control circuit and ground.

  ⇒ If 1 V or greater, repair the short to voltage on the circuit.

  ⇒ If less than 1 V, replace the K9 Body Control Module.

⇓ **If the test lamp turns ON and OFF**

5. Test or replace the P18 Door Lock Status Indicator.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Control Module References for module replacement, programming, and setup.

Description and Operation

Theft Systems Description and Operation

Object-ID=5581863 Owner=Day, Colin LMD=18-May-2021 LMB=Blanzy, Ken

When armed, the content theft deterrent system is designed to deter vehicle content theft by pulsing the horns and exterior lamps for approximately 30 seconds when an unauthorized vehicle entry is detected. However, the content theft deterrent system does not affect engine starting.

An unauthorized entry can be any of the following with the content theft deterrent system armed:

- Unauthorized entry into the engine area
- Unauthorized entry into the vehicle compartments
- When any door is opened without using the UNLOCK command from a keyless entry transmitter
- After a battery reconnect, if the battery was disconnected with the content theft deterrent system armed

The components of the content theft deterrent system are:

- Body Control Module (BCM)
- Remote control door lock receiver
- Security indicator
- Door ajar switches
- Liftgate ajar switch
- Hood ajar switch
- Intrusion sensor, if equipped
- Intrusion sensor disable switch, if equipped
- Glass breakage sensor, if equipped
- Alarm siren, if equipped

Arming the Content Theft Deterrent System

Use the following procedure in order to arm the system:

1. Place the shift lever in P (park).
2. Turn OFF the ignition.
3. Open any door.

   Note: The system is not armed if the doors are locked manually; the power door lock switch or remote keyless entry transmitter must be used to arm the content theft deterrent system.

4. Lock the doors with the power door lock switch or by pressing the LOCK button on the transmitter. The system is in standby mode and will not start the arming timer until all doors are closed.
5. The system will begin the arm sequence immediately after the last door is closed. If the keyless entry transmitter is used to arm the system

after the vehicle doors are closed, the arm sequence will begin as soon as the LOCK command is received from the transmitter.

6. Pressing the LOCK button on the keyless entry transmitter a second time will bypass the delayed arming function and force the system to arm.

Locking the Vehicle Without Arming the Content Theft Deterrent System

Locking the vehicle may be accomplished without arming the content theft deterrent system. Use of the manual door locks will lock the vehicle, but will not arm the content theft deterrent system.

Disarming an Armed System/Silencing an Alarm

If system arming has been requested by the power door lock switch or the keyless entry transmitter, it must be disarmed.

Note: Disconnecting the battery or removing fuses does not disable the arm or alarm modes, since the BCM stores the content theft deterrent mode status in memory.

- To disarm the content theft deterrent system in standby mode, perform one of the following:
  - Press the UNLOCK button on the keyless entry transmitter.
  - Approach the vehicle with a valid keyless entry transmitter and pull the vehicle door handle.
  - Insert a valid key into the ignition and switch to the ON position.
- To disarm the content theft deterrent system in the armed mode (non-event) or when activated (during an alarm event):
  - Press the UNLOCK button on the keyless entry transmitter.
  - Insert a valid key into the ignition and switch to the ON position

Content Theft Deterrent Circuit Description

The following is a description of each component used in the content theft deterrent system:

Body Control Module

The content theft deterrent system is an internal function of the BCM which utilizes serial data and various switch inputs information to perform content theft deterrent functions. When the BCM detects an unauthorized entry, it activates the horns and exterior lamps. The BCM has 4 basic modes (disarmed, standby, armed, and alarm) for operating the content theft deterrent system. The different modes are described below.

1. The BCM has the content theft deterrent system in a disarmed mode until the following conditions are detected:
   - Ignition key turned to the OFF position.
   - Doors locked by either the power door lock switch or the LOCK button on the transmitter.
2. The BCM enters the standby mode when the above conditions are detected. If a door was already opened when the arm mode was requested, the standby mode does not start the timer until the last door is closed.
3. When the last door is closed, a 15 second timer is activated. Once the timer has expired, the BCM enters the armed mode. After this delay, any unauthorized entry will activate the alarm mode.
4. When the BCM detects an unauthorized entry, the BCM enters the alarm mode. The BCM activates the horns and exterior lamps for 30 seconds. This is followed by a three minute time-out with the horn no longer active. If no new intrusions are detected after the time-out, the horn is not active. The system must be disarmed or the intrusion condition removed after the time-out for the system to exit alarm mode.

Remote Control Door Lock Receiver

The keyless entry system can arm and disarm the content theft deterrent system. When the remote control door lock receiver receives a door lock or unlock signal from the transmitter, the remote control door lock receiver sends a message to the BCM via serial data to perform the appropriate arm/disarm functions.

Security Indicator

The security LED is illuminated on the upper I/P by the BCM. The content theft deterrent system uses the security LED to inform the driver of system status prior to arming.

Door Ajar Switches

The content theft deterrent system uses the door ajar switches as a status indicator to activate the alarm. The door ajar switches are monitored by the body control module via a discrete input from each door ajar switch. If the BCM receives a signal indicating a door is opened when the content theft deterrent system is armed, the BCM activates the alarm.

Hood Ajar Switch

The content theft deterrent system uses the hood ajar switch as a status indicator to activate the alarm. The BCM monitors the hood ajar switch via a discrete input from the switch. If the BCM receives a signal indicating the hood has been opened when the content theft deterrent system is armed, the BCM activates the alarm.

Liftgate Ajar Switch

The content theft deterrent system uses the liftgate ajar switch as a status indicator to activate the alarm. The BCM monitors the liftgate ajar switch via a discrete input from the switch. If the BCM receives a signal indicating the liftgate has been opened when content theft deterrent system is armed, the BCM activates the alarm.

Intrusion Sensor

The intrusion sensor is located in the overhead console and uses two ultrasonic sensors to detect any motion inside the vehicle. If motion is detected inside the vehicle while the content theft deterrent system is armed, the system will transition to the alarm mode. The intrusion sensor also acts as an inclination sensor.

The inclination sensor determines the vehicles level when the content theft deterrent system is armed. If the vehicle level is changed while the system is armed, such as being lifted by a tow truck or raised with a jack, the alarm will be activated. The intrusion sensor can be disabled using the intrusion sensor disable switch. The intrusion sensor disable switch also shows the intrusion sensor status using a status LED.

Glass Breakage Sensor

The glass breakage sensors are located on the rear side windows and are supplied B+ at all times. The BCM monitors the glass breakage sensor signal circuit. If the rear side glass is broken, the glass breakage sensor signal circuit will open and the BCM will enter the alarm mode.

Alarm Siren

The content theft deterrent system uses the alarm siren as an audible alert device to alert individuals near the vehicle that a vehicle intrusion is occurring. The siren is supplied power and ground for operation and communicates with the body control module (BCM) via a dedicated LAN circuit.

Inputs

The BCM monitors the following inputs for content theft deterrent:

- Door ajar switches
- Keyless entry transmitter LOCK/UNLOCK buttons; a message from the remote control door lock receiver
- Immobilizer status—The BCM uses the immobilizer status for disarming the system or silencing an alarm when the correct vehicle key is used to start the vehicle
- Liftgate ajar switch
- Hood ajar switch
- Intrusion sensor
- Glass breakage sensor

Outputs

The BCM controls the following for content theft deterrent:

- Horn relay
- Exterior lamps
- Alarm siren

BLANK

Section 9

Transmission

Power Take-Off 9-3
Schematic and Routing Diagrams 9-3
Power Take-Off (PTO) Schematics 9-4
Description and Operation 9-6
Power Take-Off (PTO) Description and Operation 9-6
Shift Lock Control 9-7
Schematic and Routing Diagrams 9-7
Shift Lock Control Schematics 9-8
Description and Operation 9-9
Automatic Transmission Shift Lock Control Description and Operation 9-9

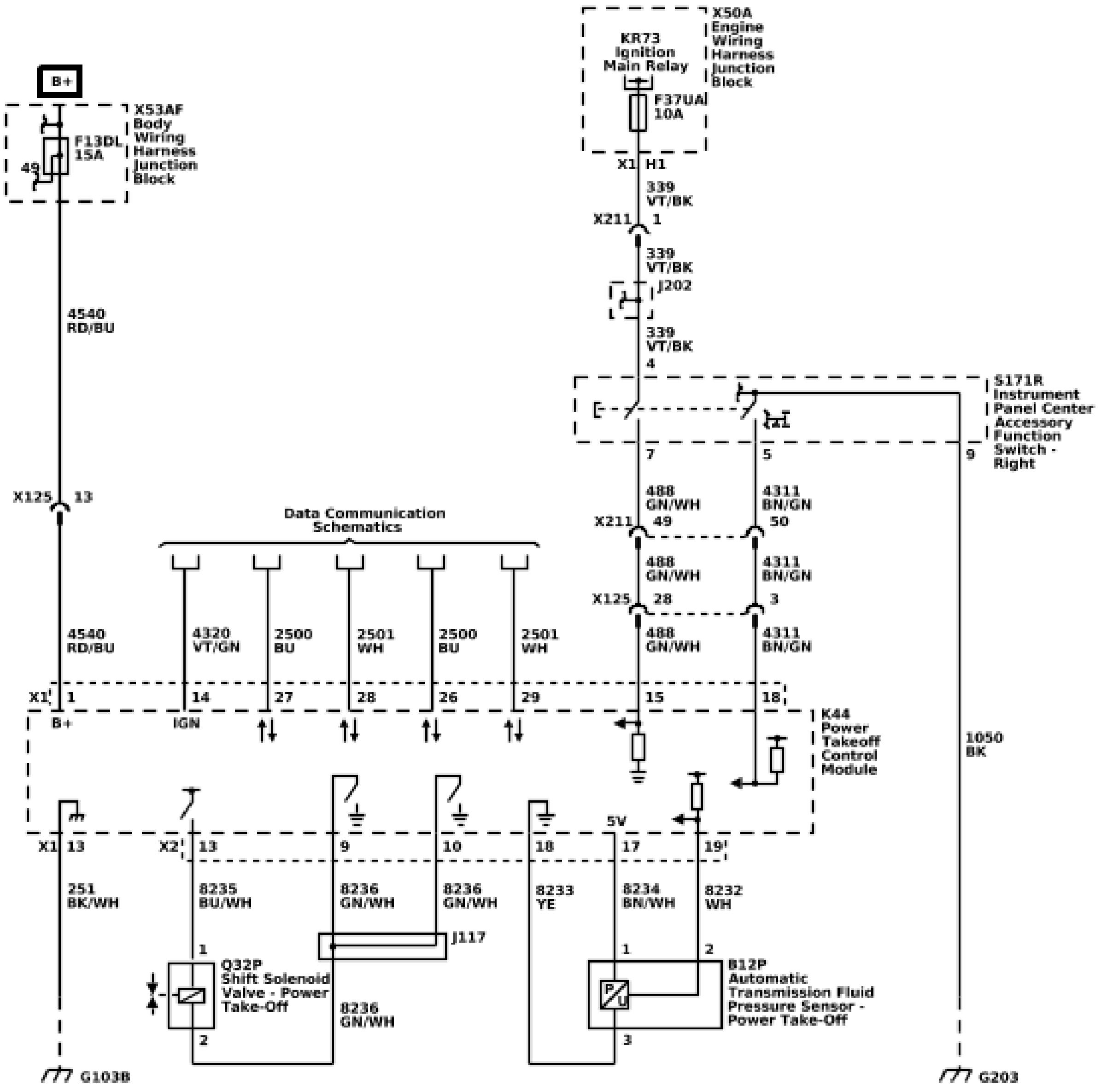
BLANK

Transmission

Power Take-Off

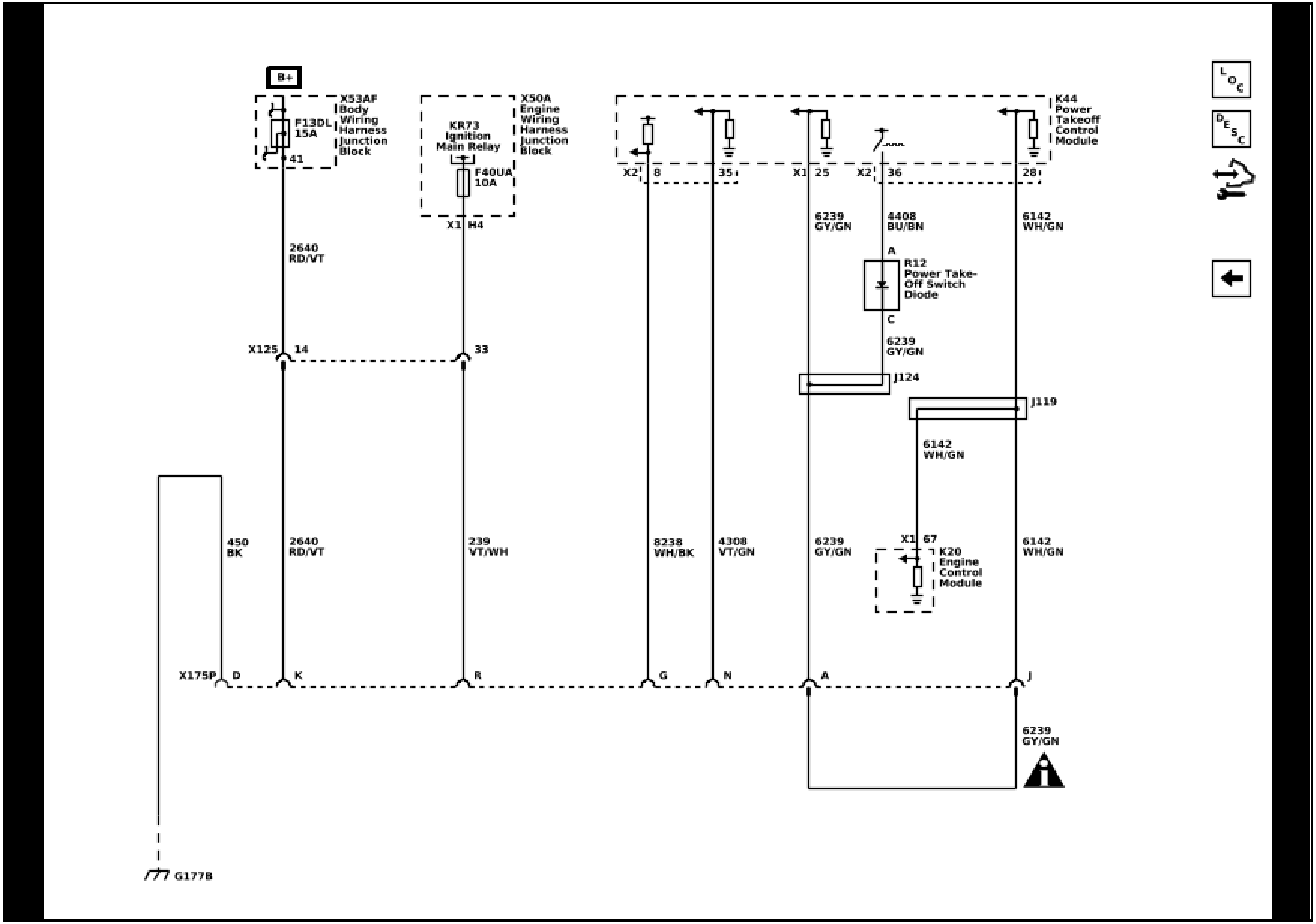
Schematic and Routing Diagrams

Power Take-Off (PTO) Schematics Object-ID=6152432 (Power, Ground, Serial Data and Enable (PTO))


B+
X53AF Body Wiring Harness Junction Block
F13DL 15A
49
4540 RD/BU
X125 13
4540 RD/BU
X1 1
B+
X50A Engine Wiring Harness Junction Block
KR73 Ignition Main Relay
F37UA 10A
X1 H1
339 VT/BK
X211 1
339 VT/BK
J202
339 VT/BK
4
S171R Instrument Panel Center Accessory Function Switch - Right
7
5
9
488 GN/WH
4311 BN/GN
X211 49
50
488 GN/WH
4311 BN/GN
X125 28
3
488 GN/WH
4311 BN/GN
Data Communication Schematics
4320 VT/GN
2500 BU
2501 WH
2500 BU
2501 WH
14
27
28
26
29
15
18
IGN
K44 Power Takeoff Control Module
1050 BK
5V
X1 13
X2 13
9
10
18
17
19
251 BK/WH
8235 BU/WH
8236 GN/WH
8236 GN/WH
8233 YE
8234 BN/WH
8232 WH
J117
1
Q32P Shift Solenoid Valve - Power Take-Off
2
8236 GN/WH
1
2
3
B12P Automatic Transmission Fluid Pressure Sensor - Power Take-Off
P
U
G103B
G203

6150672

Power Take-Off (PTO) Schematics Object-ID=6152432 (Provisional Connector (PTO))


B+
X53AF Body Wiring Harness Junction Block
F13DL 15A
41
2640 RD/VT
X125 14
X50A Engine Wiring Harness Junction Block
KR73 Ignition Main Relay
F40UA 10A
X1 H4
33
239 VT/WH
K44 Power Takeoff Control Module
X2 8
35
X1 25
X2 36
28
6239 GY/GN
4408 BU/BN
6142 WH/GN
A
R12 Power Take-Off Switch Diode
C
J124
J119
X1 67
K20 Engine Control Module
450 BK
8238 WH/BK
4308 VT/GN
X175P D
K
R
G
N
A
J
G177B

6150673

Description and Operation

Power Take-Off (PTO) Description and Operation

Object-ID=5395717 Owner=Rose, Daniel LMD=19-Aug-2019 LMB=Rose, Daniel

Power Take-Off System

The Power Take-Of (PTO) is a General Motors (GM) Upfitter integrated system that creates an auxiliary power source for running add-on equipment, such as salt spreaders, snow plows, winches, and lift buckets. It controls engine speed to values higher than normal base idle, PTO integral clutch engagement, and remote starting and shutdown of the engine.

For specific information on how to set up and operate the Power Take Off system refer to the vehicle's owners manual and the GM Upfitter website.

PTO Components

The Original Equipment Manufacturer (OEM) PTO components consist of:

- The transmission (internal) PTO gear which rotates with the torque converter
- The In-cab PTO switch and cruise control SET and RES switches
- The PTO telltale indicator
- The Driver Information Center (DIC)
- The Radio and Navigation Screen (HMI)
- The Power Take-Off Module
- The PTO Unit
- The On/Off Solenoid
- The Pressure Sensor
- The Remote PTO Upfitter connector X176

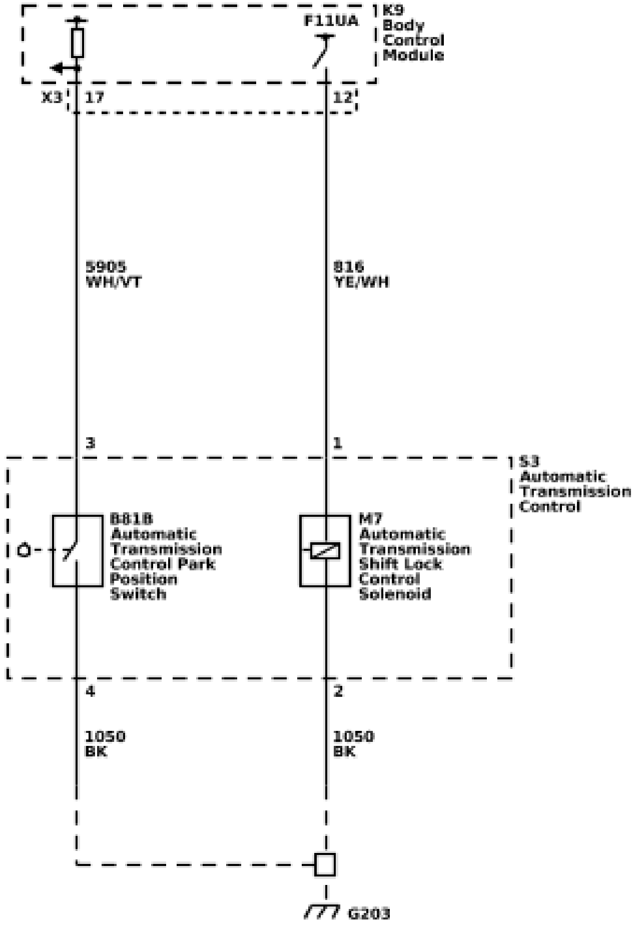
Note: The interface connector X176 is located underneath the cab, near the left frame rail and comes with a cap which is the mating half to the truck harness connector. This is the connector the Upfitter will use to wire in necessary external electrical components such as external switches to control the PTO from outside the cab.

Transmission

Shift Lock Control

Schematic and Routing Diagrams

Shift Lock Control Schematics Object-ID=6152433 (Shift Lock Control)


K9
Body
Control
Module
F11UA
X3
17
12
5905
WH/VT
816
YE/WH
3
1
S3
Automatic
Transmission
Control
B818
Automatic
Transmission
Control Park
Position
Switch
M7
Automatic
Transmission
Shift Lock
Control
Solenoid
4
2
1050
BK
1050
BK
G203

6150674

Description and Operation

Automatic Transmission Shift Lock Control Description and Operation

Object-ID=5392760 Owner=Paprzycki, Derek LMD=08-Aug-2019 LMB=Paprzycki, Derek

The Automatic Transmission Shift Lock Control System is a safety device that prevents an inadvertent shift out of PARK when the engine is running. The driver must press the brake pedal before moving the shift lever out of the PARK position. The system consists of the following components:

- The Automatic Transmission Shift Lock Solenoid (serviced as the Automatic Transmission Shift Lock Actuator)
- The Body Control Module (BCM)
- The Engine Control Module (ECM)

The BCM controls the voltage to the shift lock control solenoid though the shift lock control solenoid controlled voltage circuit. The following conditions must be met before the BCM will supply voltage to the shift lock control solenoid:

- The ignition is in the ON position.
- The ECM sends an input via GMLAN serial data to the BCM when the Transmission Control Module (TCM) indicates the transmission is in the PARK position.
- The BCM receives a brake applied input from the stop lamp switch.

Since the shift lock control solenoid is permanently grounded, the BCM supplies voltage to the automatic transmission shift lock control solenoid, releasing the mechanical lock on the shift lever as the solenoid energizes. The energized solenoid allows the driver to move the shift lever out of the PARK position. When the brake pedal is not applied, the BCM turns the control voltage output of the shift lock control solenoid OFF, de-energizing the shift lock control solenoid. When the transmission is in the PARK position, the de-energized shift lock control solenoid will prevent shifting as the lever is mechanically locked in the PARK position.

During remote start operation the BCM will de-energize the automatic transmission shift lock control circuit, locking the shift lever in the PARK position

BLANK

A

Adhesives, Fluids, Lubricants, and Sealers 8-341, 8-429
Airbag
  Airbag Rear Side Door Side Impact Sensor Replacement 8-577, 8-583, 8-589
  Indicator Malfunction - Driver 8-479
  Indicator Malfunction - Passenger 8-480
  Sensing and Diagnostic Module Replacement 8-496, 8-498, 8-502
  Side Impact Sensor Replacement 8-486, 8-490
  Steering Wheel Module Coil Centering 8-533
Automatic Day-Night Mirror
  Description and Operation 2-50
Automatic HVAC Description and Operation 6-11

B

Battery
  Description and Operation 5-11

C

Charging System
  Description and Operation 5-11
Component Connector End Views 7-58
Content Theft Deterrent Malfunction 8-686

D

Data Link Communications
  Description and Operation 7-3
Door Ajar Indicator
  Description and Operation 2-80
DTC B0001 or B0002 8-434
DTC B0010 or B0011 8-437
DTC B0021 or B0029 8-440
DTC B0070 or B0072 8-443
DTC B007E or B007F 8-446
DTC B0090-B0098 8-449
DTC B0954, B0955, B0956, or B0957 8-44
DTC B0958, B0959, B0960, or B0961 8-47
DTC B0967 8-50
DTC B0968 8-52
DTC B1015 8-54
DTC B10B4 or B120C 8-451
DTC B113C 8-685
DTC B12D4 or B12D5 8-454
DTC B13A9 8-457
DTC B1405 8-56, 8-59
DTC B1442 8-225
DTC B1444 8-228, 8-230
DTC B1451 8-232
DTC B1491 8-462
DTC B1511 8-234
DTC B1513 8-237
DTC B15DF or B15E3 8-464
DTC B15EE 8-13
DTC B1619 or B161A 8-467
DTC B17F0 or B17F2 8-470
DTC B1977 8-15
DTC B197D 8-17
DTC B197F 8-18
DTC B1980 8-19
DTC B1981 8-20
DTC B1987 8-21, 8-23
DTC B1989 8-21, 8-23
DTC B198A 8-25
DTC B1A33 8-473
DTC B1A34 8-474
DTC B1A35 8-475
DTC B1A7A 8-477
DTC B1AAE 8-240
DTC B1AAF 8-242
DTC B1AD2 8-343
DTC B1AD3 8-346
DTC B1AEE 8-244
DTC C006A 8-478
DTC P0513 8-26
DTC P0633 8-27
DTC P162B 8-28
DTC P1631 8-29
DTC P1649 8-33
DTC P18CB 8-61

E

Electrical Center Identification Views 7-6
Electrical Power Management Description and Operation 5-14
Electronic Parking Brake
  Control Module Description 3-3
Endgate
  Description and Operation 2-80–2-82
Exterior Lighting Systems
  Description and Operation 2-41

F

Fastener Specifications
  Parking Assistance Systems 8-38
  Remote Functions 8-220
  Seat Belts 8-338
  Supplemental Restraints 8-423
Forward Collision Alert
  Description and Operation 8-5
Front and Rear Row Seat Roof Rail Airbag Replacement 8-543
Front Center Seat Belt
  Retractor Replacement 8-375
Front Center Seat Belt Buckle Replacement 8-371
Front End Inflatable Restraint
  Discriminating Sensor Replacement 8-482
Front Parking Assist
  Alarm Sensor Bracket Replacement 8-121, 8-138
  Alarm Sensor Replacement 8-95, 8-113

- Front Seat
  - Outboard Seat Back Airbag Replacement ... 8-569, 8-573
- Front Seat Belt
  - Anchor Plate Tensioner Replacement ... 8-625, 8-639
  - Buckle Replacement ... 8-359
  - Guide Adjuster Replacement ... 8-404
  - Retractor Replacement ... 8-593, 8-609
- Front Seat Belt Opening Bezel Replacement ... 8-362, 8-367
- Front Side Door Access Control Transmitter Description and Operation ... 8-333
- Front Side Door Access Control Transmitter Malfunction ... 8-252

G

- Garage Door Opener
  - Description and Operation ... 8-334
  - Malfunction ... 8-245
  - Transmitter Replacement ... 8-327

H

- Heater and Air Conditioning
  - System Description and Operation ... 6-3
- Hood Ajar Indicator
  - Description and Operation ... 2-82
- Horn
  - System Description and Operation ... 2-14

I

- Ignition Lock Key Transmitter Antenna Bracket Replacement ... 8-257
- Immobilizer
  - Description and Operation ... 8-36
- Inflatable Restraint
  - Front Passenger Presence Module Replacement ... 8-537
- Inflatable Restraint Module Handling and Scrapping ... 8-657
- Inline Harness Connector End Views ... 7-661
- Instrument Panel
  - Airbag Replacement ... 8-534
- Interior Lighting System
  - Description and Operation ... 2-44

K

- Keyless Entry
  - System Description and Operation ... 8-334
  - System Malfunction ... 8-247
- Keyless Entry Transmitter Pocket Location ... 8-253

L

- Lane Departure Warning
  - Description and Operation ... 8-7
- Low Frequency
  - Console Antenna Replacement ... 8-276, 8-287
- Low Frequency (cont'd)
  - Console Number 2 Antenna Replacement ... 8-305
  - Instrument Panel Antenna Replacement ... 8-264
  - Rear Bumper Antenna Replacement ... 8-313

M

- Manual HVAC Description and Operation ... 6-22
- Master Electrical Component List ... 7-853
- Mobile Device Wireless Charger
  - Description and Operation ... 7-821

N

- Noise Heard from Motorized Seat Belt Retractor ... 8-353

O

- OnStar
  - Stolen Vehicle Slowdown Active ... 8-34
- Outside Mirror
  - Description and Operation ... 2-51

P

- Parking Assist
  - Alarm Sensor Ring Replacement - Front ... 8-178
  - Alarm Sensor Ring Replacement - Rear ... 8-206, 8-211
  - Control Module Replacement ... 8-65, 8-68
  - Description and Operation ... 8-216, 8-217
  - System Malfunction ... 8-62
- Parking Assistance Systems
  - Component Replacement Reference ... 8-43
- Power Door Locks
  - Description and Operation ... 2-83
- Power Mode Description and Operation ... 7-921
- Power Outlets
  - Description and Operation ... 7-821
- Power Take-Off (PTO)
  - Description and Operation ... 9-6
- Power Windows
  - Description and Operation ... 2-11
- Pretensioner Handling and Scrapping ... 8-671

R

- Rear Center Seat Belt
  - Retractor Replacement ... 8-400
- Rear Parking Assist
  - Alarm Sensor Bracket Replacement ... 8-167, 8-172
  - Alarm Sensor Replacement ... 8-152, 8-155
- Rear Seat Belt
  - Retractor Replacement ... 8-410
- Rear Vision Camera
  - Description and Operation ... 4-8
- Rear Window Defogger
  - Description and Operation ... 2-11

Rearview Camera
  Camera Full Display Mirror Description and Operation 4-8
Remote Control Door Lock
  and Theft Deterrent 8-256
  Receiver Replacement 8-316, 8-320
Remote Vehicle Speed Limiting
  Description and Operation 8-37
Remote Vehicle Speed Limiting Description and Operation 8-37
Repairs and Inspections Required After a Collision 8-
Retained Accessory Power
  Description and Operation 7-925
RPO Code List 1-7

S

Safety Alert Seat
  Description and Operation 8-8
Schematics
  Auxiliary Battery 5-10
  Cigar Lighter/Power Outlet 7-810
  Defogger 2-10
  Door Lock/Indicator 2-68
  Endgate 2-75
  Exterior Lamps 2-20
  Fog Lamps 2-19
  Ground Distribution 7-827
  Headlamps/Daytime Running Lamps 2-16
  Hood Latch 2-79
  Horns 2-13
  HVAC Systems - Automatic 6-5
  HVAC Systems - Manual 6-16
  Image Display Cameras 4-4
  Immobilizer 8-12
  Inside Rearview Mirror 2-46
  Interior Lamps 2-35
  Interior Lamps Dimming 2-37
  Moveable Window 2-4
  Outside Rearview Mirror 2-47
  Parking Assistance Systems 8-40
  Power Moding 7-825
  Power Take-Off (PTO) 9-4
  Release Systems 2-74
  Remote Function 8-222
  Seat Belts 8-342
  Shift Lock Control 9-8
  SIR 8-430
  Starting and Charging 5-4
  Theft Deterrent 8-684
  Trailering Systems 2-54
  Upfitter Provision 7-850
  Wiper and Washer Systems 2-85
Seat Belt
  Buckle Replacement - No. 1 Rear 8-399
  Does Not Retract - One 8-348
  Guide Adjuster Stuck in Full Down Position 8-348
  Indicator Circuit Malfunction - Driver 8-353
Seat Belt (cont'd)
  Indicator Circuit Malfunction - Passenger 8-355
  Repairs and Inspections Required after a Collision 8-357
  Retractor Guide Cleaning 8-357
  Service Precautions 8-357
  System Description and Operation 8-420
Seat Belt Buckle
  Does Not Function Properly and/or Seat Belt Warning Lamp Illuminated 8-353
Seat Belt Retractor
  Does Not Function Properly or is Inoperative - Automatic Locking Retractor 8-349
  Does Not Function Properly or is Inoperative - Belt Sensing 8-350
  Does Not Function Properly or is Inoperative - Belt Twisting 8-350
  Does Not Function Properly or is Inoperative - Guide Contamination 8-352
  Does Not Function Properly or is Inoperative - Overspool Lock 8-349
  Does Not Function Properly or is Inoperative - Vehicle Sensing 8-350
Security Indicator
  Malfunction 8-687
Shift Lock Control
  Description and Operation 9-9
Side Blind Zone Alert
  Description and Operation 8-9
SIR
  Disabling and Enabling 8-480
  Service Precautions 8-482
Special Tools
  Remote Functions 8-337
  SIR 8-681
Starting System
  Description and Operation 5-16
Steering Wheel
  Airbag Coil Replacement 8-512
  Airbag Replacement 8-506
Supplemental Inflatable Restraint
  System Description and Operation 8-678
Surround Vision Camera
  Description and Operation 4-8
Symptoms
  Immobilizer 8-34
  Parking Assistance Systems 8-61
  Remote Functions 8-245
  Seat Belts 8-348
  SIR 8-478
  Theft Deterrent 8-686
Symptoms - Front Side Door Access Control
  Transmitter 8-245
System Components
  Programming Immobilizer System 8-34

T

Theft Systems
  Description and Operation . . . .

Theft Systems (cont'd) 2-61
Trailering Description and Operation 2-61
Trailering Systems Schematics 2-54

V

Vehicle Certification, Tire Placard, and Anti-Theft Label 1-5
Vehicle, Engine and Transmission ID and VIN Location, Derivative and Usage 1-3

W

Wiper/Washer
  System Description and Operation 2-87